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ECONOMIC REQUIREMENTS ANALYSIS OF CIVIL AIR NAVIGATION ALTERNATIVES

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Volume II

Systems Control, Inc. (Vt.)
Palo Alto, Ca. 94304

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FINAL REPORT

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U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION
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16. Abstract

This report summarizes a study whose objectives were to:

(1) Develop a life cycle cost computer model to evaluate various alternative civil aviation navigation systems,

(2) Project government implementation and recurring costs and user avionics costs associated with each alternative.

(3) Develop rational implementation/transition scenarios for various combinations of the systems to provide civil air navigation coverage in the CONUS, Alaska, Oceanic and Off-shore regions.

(4) Make an initial assessment of the economic impact upon the FAA and civil aviation users for each scenario.

Alternatives evaluated were VOR/DME, Loran-C, Omega, Differential Omega, and GPS. The least costly alternative, based upon combined civil user and FAA costs, was found to be continued use of VOR/DME. Sole use of GPS was found to be the most costly alternative.

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FOREWORD

This report is published in two volumes. Volume I presents the findings in six sections plus an executive summary:

I. INTRODUCTION

II. APPROACH

III. STUDY GUIDELINES AND GROUND RULES

IV. NAVIGATION SYSTEM CHARACTERIZATION

V. IMPLEMENTATION SCENARIOS

VI. RESULTS

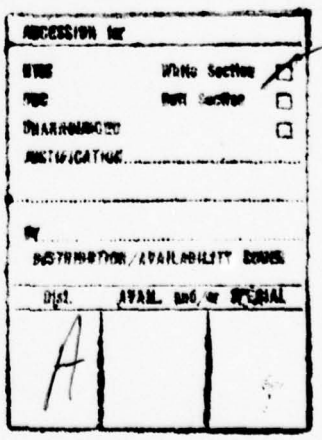
Volume II contains appendices with supporting data and methodology descriptions as follows:

APPENDIX A: FAA AND USER COST ESTIMATION METHODOLOGY

APPENDIX B: DEVELOPMENT OF RAANS NAVIGATION SYSTEM AND AVIONICS COSTS

APPENDIX C: BACKUP STUDY RESULTS

APPENDIX D: COMPLETE LIFE CYCLE COST MODEL PRINTOUT



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RAANS Project Manager

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NOMENCLATURE

ADF	Automatic Direction Finder
CCZ	Coastal Confluence Zone
CONUS	Continental United States
COTR	Contracting Officer's Technical Representative
*DME	Distance Measuring Equipment
DOD	Department of Defense
FAA	Federal Aviation Administration
GA	General Aviation
ICAO	International Civil Aviation Organization
INS	Inertial Navigation System
L	Avionics Lifetime in Years
LF	Low Frequency
NA	Not Applicable
NAS	National Airspace System
NSE	Navigation System Evaluator (Life Cycle Cost Model)
O&M	Operating and Maintenance
OMB	Office of Management and Budget
R&D	Research and Development
RAANS	Requirements Analysis of Air Navigation Systems (i.e., the study described in this report)
RNAV	Area Navigation
RST	RAANS Support Team
SCI (Vt)	Systems Control, Inc. (Vt)
S/N	Signal to Noise
TACAN	Tactical Air Navigation
VLF	Very Low Frequency
*VOR	VHF Omnidirectional Radio Range
*VORTAC	VOR Co-located with a TACAN

*For the purpose of this report, no distinction is made after Section 1.1.2 between VOR/DME and VORTAC. Any reference to VOR type ground equipment is meant to include all VOR/DME and VORTAC facilities present in the NAS.

APPENDIX A

FAA AND USER COST ESTIMATION METHODOLOGY

In addition to an overview, this appendix presents detailed descriptions of the significant elements comprising the RAANS approach (summarized in Section II of Volume I) used to quantify FAA and NAS user costs. Elements of the FAA costing methodology include data base development, implementation scenario inputs, major processing elements and output options. Description of the NAS user cost quantification procedure includes user group definition and fleet forecasts, navigation avionics age distribution and lifetime estimates, accelerated avionics retrofit rates, avionics purchase rate logic, production base related cost reductions and technology improvement related cost reductions.

A.1 FAA COSTS

Elements of the FAA cost derivation procedure are displayed in Figure A.1. The anticipated costs to the navigation system operators (both FAA and non-FAA agencies) must be derived in a manner that permits differentiating between the alternative systems and the associated implementation scenarios that this study addresses.

The spectrum of potential FAA implementation alternatives can be characterized by the following factors (variables):

(1) available or potentially available navigation system alternatives,

(2) geographical (airspace) regions wherein they are implemented, and

(3) implementation timing and years of operation.

The six basic systems considered within this study, which either currently supply or may potentially supply primary (enroute) navigation capabilities are:

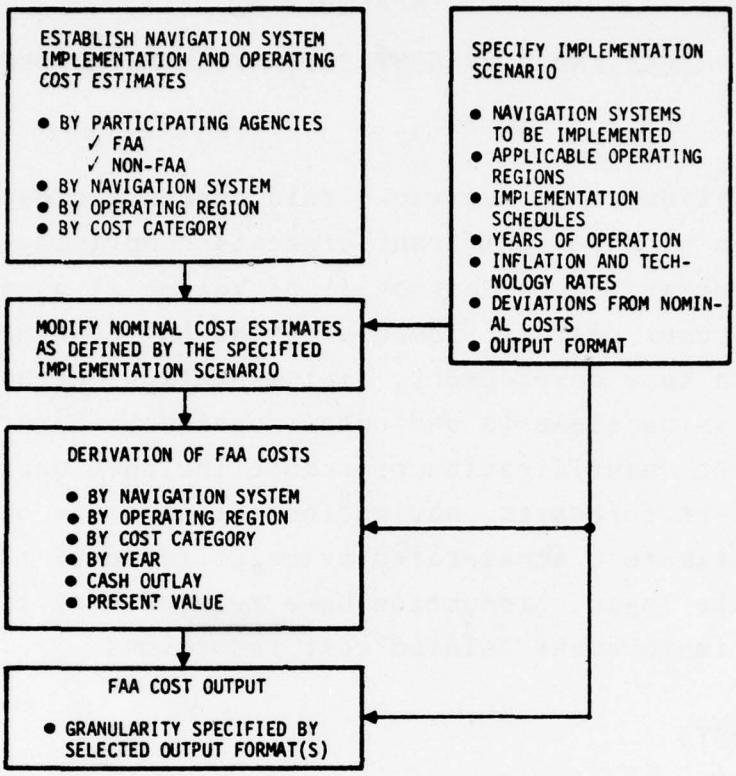


Figure A.1 Elements of FAA Cost Derivation Procedure

(1) VOR (VORTAC, VOR/DME)
(2) Self-contained (INS, Doppler Radar)
(3) Omega
(4) Differential Omega
(5) Loran-C
(6) Global Positioning System (GPS)

For the purpose of this study, the geographical (airspace) regions have been classified as follows:

(1) CONUS
(2) Alaska
(3) Oceanic
(4) Conus Off-shore
(5) Alaska Off-shore

This particular geographical subdivision was adopted in order to account for the possibility that different navigation systems could be implemented in different regions at different times.

Although not all navigation systems are capable of satisfying the user navigation requirements in all of the regions, there

are nonetheless many potentially viable implementation alternatives.

A.1.1 Government Implementation and Operating Cost Data Base Structure

To permit derivation of operating region sensitive costs, the data base has been structured as shown in Figure A.2. The four quadrants of this matrix encompass: (I) non-FAA implementation costs, (II) FAA implementation costs, (III) FAA annual recurring costs, and (IV) non-FAA annual recurring costs. Non-FAA implementation costs represent those future, i.e., additional, costs required to bring a given system(s) up to an operational state that are expected to be borne by operating organizations/agencies other than the FAA. FAA implementation costs cover anticipated FAA costs to bring a given system(s) to an operational state.* FAA and non-FAA annual recurring costs generally refer to the expected yearly costs required to keep a given navigation system in an operational state which will be incurred by the FAA or operating organizations/agencies other than the FAA, respectively.

The data base is further subdivided as follows:

(1) by navigation system (indicated by the circled numbers in Figure A.2),

(2) by operating region, and

(3) by cost category.

Space is allocated for six systems; nominally corresponding to each of the six systems previously mentioned. For processing purposes, six "regions" are considered. Five of these correspond to the operating regions previously listed. The sixth refers to "fixed" or "region-independent" costs. This cost component is intended to reflect basic FAA "overhead" costs which are incurred when a system is implemented. The costs associated with the other

*Adequate to support the civil aviation navigation system requirements

COST CATEGORY BY OPERATING REGION	NON-FAA OPERATOR'S COST BY NAVIGATION SYSTEM						FAA COSTS BY NAVIGATION SYSTEM						
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)	
Area Independent													IMPLEMENTATION COSTS
Hardware													
R&D													
Training													
Unassigned													
Total													
CONUS													
Hardware													
R&D													
Training													
Unassigned													
Total													
Alaska													
Hardware													
R&D													
Training				I						II			
Unassigned													
Total													
CONUS Off-shore													
Hardware													
R&D													
Training													
Unassigned													
Total													
Alaska Off-shore													
Hardware													
R&D													
Training													
Unassigned													
Total													
Oceanic													
Hardware													
R&D													
Training													
Unassigned													
Total													
Area Independent													ANNUAL RECURRING COSTS
O&M													
Spares Replacement													
Staff													
Charting													
Other													
Unassigned													
Total													
CONUS													
O&M													
Spares Replacement													
Staff													
Charting													
Other													
Unassigned													
Total													
Alaska													
O&M													
Spares Replacement													
Staff			IV						III				
Charting													
Other													
Unassigned													
Total													
CONUS Off-shore													
O&M													
Spares Replacement													
Staff													
Charting													
Other													
Unassigned													
Total													
Alaska Off-shore													
O&M													
Spares Replacement													
Staff													
Charting													
Other													
Unassigned													
Total													
Oceanic													
O&M													
Spares Replacement													
Staff													
Charting													
Other													
Unassigned													
Total													

Figure A.2 Navigation System Operator Anticipated Cost Matrix (1977 Dollars)

five (actual) regions are designed to be "region-incremental" costs; i.e., the costs over and above the fixed costs associated with implementing a given system in any region. Subdividing the costs in this manner was necessary in order to preclude the possibility of counting the region indepenent costs more than once.

FAA costs are broken down into the following cost categories:

Implementation Costs

(1) Hardware
(2) R&D
(3) Training
(4) Unassigned

Annual Recurring Costs

(1) O&M
(2) Spares
(3) Staff
(4) Charts
(5) Other
(6) Unassigned

This type of cost categorization was incorporated into the methodology to provide the option of applying technology improvement cost reduction factors to hardware and spares or different inflation rates to equipment and/or labor intensive categories. In addition, these cost categories were selected to permit reconciliation and comparison of the model results with FAA budgets and the results of other studies. The "unassigned" category is used to accommodate those costs which could not be broken out into one or more of the other categories. These implementation costs are assumed to be the total implementation related costs over the entire implementation period. Annual distribution of these totals is determined as part of the implementation scenario input. The recurring costs are constant annual values (in 1977 dollars).

Costs are also divided into FAA and non-FAA costs. The non-FAA costs are those costs that are yet to be incurred by the non-FAA operators of a given navigation system (i.e., DOD for GPS) independent of whether or not the navigation system in question

is adopted as a civil air navigation system. The FAA costs represent those incremental costs required to upgrade or modify alternative systems or supply those services necessary to cause that system to satisfy the civil air navigation requirements. Costs of the current VOR system are borne solely by the FAA. Generally, only the FAA costs are processed. However, the implementation scenario can be used to specify what percent of the non-FAA costs are to be considered (i.e., incurred by the FAA). This permits processing of scenarios wherein the FAA shares the costs of non-FAA systems.

A.1.2 FAA Cost Related Implementation Scenario Inputs

Implementation scenario input regarding the FAA processing can be divided into three sections. These are:

(1) input designed to modify the nominal cost data base,

(2) input for system selection and schedule definition, and

(3) input to specify granularity of desired output.

The implementation scenario input may be used to alter any or all of nominal data base values (even system names, in the event that systems other than those prestored are to be considered) and may select any or all of the available output options.

The input to select the alternative systems and schedule their implementation and transition periods is the basic input, affecting both the FAA and user cost results. This input consists of the following:

(1) For each system ever implemented or operational within the scenario, the rate of expenditure for the fixed implementation costs must be specified. This is accomplished by specifying the first and last years of implementation. A uniform rate of expense can be invoked by so indicating. Alternatively, any other rate of expense can be input by specifying a sequence of digits indicating the per cent of total expense spent in each implementation year. The implementation rates can be the same for each of the four implementation cost categories, or they may be individually defined.

(2) For each system/region combination, the rate of implementation must be defined, exactly as for the fixed costs. Implementation timing need not be the same. The years of operation must also be specified.

(3) Discount, technology and inflation rates. A discount rate (applied to present value computations) and inflation rate (a constant per cent value applied annually to all costs) and six technology rates must be specified. The six technology rates, one for each type of navigation system, are applied annually, just as the inflation rate, but only to hardware/spares expenses. Nominally these navigation system (as opposed to avionics) technology rates were set equal to zero.

(4) Percent of the non-FAA costs to be paid by the FAA. If desired, the FAA can be presumed to incur any portion of any of the non-FAA costs; for any of the systems, regions, cost types, etc. In this study, no non-FAA costs were borne by the FAA.

A.1.3 Description of Major FAA Processing Elements

The FAA processing is reasonably straightforward; this portion of the methodology is basically a cost accounting procedure. Two computation techniques are employed; one for implementation costs, the other for recurring costs.

The implementation costs for a given system, region and year are computed as follows:

(1) Each cost category is considered separately.

(2) For each category, the total implementation cost is determined by adding the FAA implementation cost to the designated per cent of the non-FAA cost.

(3) The resulting value is then multiplied by the per cent of implementation specified for the given year.

(4) Inflation is then considered by multiplying this result by the appropriate inflation factor:

$$\text{Inflation Factor} = \left[1 + \frac{\text{Inflation Rate}(\%)}{100}\right]^{\text{Year-1977}}$$

(5) If the cost type being evaluated is "hardware," the effect of technology is also considered, in the same

manner as inflation. This produces the cash outlay for the system/region/cost category combination.

(6) The (1977) present value is then computed, as shown below:

$$\text{Present Value} = \text{Cash Outlay} / \left[1 + \frac{\text{Discount Rate}(\%)}{100}\right]^{\text{Year}-1977}$$

(7) These individual cost results are then aggregated by system, region and/or cost category to produce the specified output.

For annual recurring costs the procedure is similar. The normal annual recurring cost is identified by adding the FAA and designated fraction of the non-FAA cost components. If the system being considered is still being implemented in the year being addressed, this nominal value is multiplied by the cumulative percent of hardware implementation thru that year. (This is not done for either of the current navigation systems, VOR or self-contained.) The spares cost category is then adjusted to account for the improved technology effect. The resulting value is then modified by inflation, in the same manner as the implementation costs.

A.1.4 FAA Cost Output

There are five FAA output options which provide different levels of output detail. Within the methodology, the FAA costs are divided by:

(1) Cost category,
(2) Fixed or region incremental costs (by region),
(3) Navigation system,
(4) Year.

The five output options involve dividing and outputting the FAA costs according to different combinations of these four divisions. Specifically, the output options are as follows:

(1) Detailed output by navigation system, cost category and year (one set of output for each system);

(2) Detailed output for fixed costs and for each region, by type of cost and year (one set of output for fixed costs, one for each region);

(3) Short output by region and year;

(4) Short output by navigation system and year;

(5) Short output by cost category and year.

Within a given implementation scenario, the NSE model user may specify none, any or all of these outputs. The FAA processing logic also fills in a FAA portion of the combined FAA/user output matrix (which is developed at the end of the analysis) wherein the user and FAA results are aggregated.

A.2 NAS USER COSTS

Section 2.3 of Volume I summarized the NAS user cost quantification process. This appendix presents and overview of the RAANS user cost derivation procedure and then describes the methodology used in significant parts of that process, specifically:

(1) User group definition.

(2) Establishment of avionics age distributions and average lifetime.

(3) Derivation of transition period minimum retrofit rates.

(4) Avionics purchase/retrofit rate logic.

(5) Determination of avionics cost adjustment factors.

A.2.1 Overview of RAANS User Cost Derivation Procedure

A navigation avionics retrofit/buy logic was developed and applied to determine, on an annual basis, the number and type of navigation avionics packages purchased by each of the 98 user groups. As defined in this study, a given implementation scenario identifies the transition period which is the time when both the current and the "new" navigational systems are operational and

certified for primary civil air navigation use by the FAA. This period is generally the same for all user groups operating in a given region, i.e., CONUS, Alaska, off-shore or oceanic. The navigation avionics retrofit/buy logic mandates that all avionics packages purchased prior to the transition period are to be of the current system type and all packages purchased during and after the transition period will be the specified new system type. The logic also specifies that the number of navigation avionics packages purchased by a user group in a given year is nominally equivalent to that group's number of new aircraft plus the number of existing packages that exceeded their lifetime during that year less the number of retired aircraft. However, if in a given year, the number of retired aircraft is greater than the number of existing packages which exceeded their lifetime, then the number of packages purchased in that year is set equal to the number of new aircraft. There are other exceptions to this generalized procedure of determining the annual number of avionics packages purchased, such as accounting for different systems and/or transition periods in two or more regions in which the specified user group (aircraft) operates.

The avionics packages referred to above consist of one or more navigation avionics components or units, ranging (for the current system) from a single inexpensive VOR to a set of two air carrier quality VOR's plus two DME's plus an RNAV or triple INS's. Each of the ten avionics categories used to distinguish the user groups has a predetermined avionics package composition, i.e., the type and the number of avionics units, for both the current systems (VOR and self-contained) and each of the new system alternatives (Omega, Differential Omega, Loran-C, and GPS). The relationship between the current and new system packages (avionics category) composition was predicated on maintaining a comparable performance and reliability capability both prior to, during and after the transition to the new system. This was a fundamental study groundrule, i.e., to maintain consistent avionics capability with in a given user group and let the purchase

price of the alternative new systems vary as necessary to achieve this objective.

Once the number of packages purchased in a given year was determined and the composition of each package type established, it was then possible to determine the number of each avionics units produced that year. For example, the first and second avionics category packages may consist of single and dual inexpensive VOR's, respectively. If the inexpensive VOR units are not used in any of the other eight avionics category packages, then the total number of inexpensive VOR units produced in a given year would be set equal to the number of first category packages purchased plus twice the number of second category packages purchased. The resulting number of units produced to date, for a given implementation scenario, is subsequently used to adjust the avionics purchase price.

The annualized unadjusted avionics cost for each user group is determined as the sum of the products of the number of each type of avionics unit purchased that year by that group and the unadjusted per unit costs by type of unit. These unadjusted costs should encompass the current enroute avionics purchase price*, installation costs (including antenna costs, aircraft "tuning," etc.) and changes in annual maintenance costs (which would be propagated forward in time as an annual recurring cost for that user group). In this study, with the exception of INS, all navigation avionics maintenance costs were assumed to be the same. Study resource limitations precluded an analysis of the installation cost differences between the candidate system alternatives, thus they were also assumed to be the same across all systems. With the exception of INS maintenance, these costs common to all

*For consistency, the avionics prices used in this study were limited to those associated with only enroute navigation components. Costs of those units with integral marker beacon or glideslope subsystems were reduced accordingly.

systems were set equal to zero, thus only the purchase price of navigation avionics is reflected in the "user costs" presented in this report.

The annualized unadjusted avionics costs were then adjusted to first take into account the anticipated annual variation in per unit pruchase price, then to determine the annual after tax cash flow and finally converting these costs to present value equivalents. Three factors were used to establish the per unit avionics costs for each year of interest:

(1) Inflation, set at 7% per year,

(2) Improved technology cost reduction factor, set at 5.1% per year, and

(3) Production base cost reduction factor, where the cost of the Nth unit was set equal to the product of N raised to the (n 0.9/ n 2.0) power and the first unit price. A cutoff of 20,000 units was applied to this factor, i.e., no additional production base related cost reductions occurred after the 20,000th unit was produced.

Conversion of these yearly user costs to annual after tax cash outlay is accomplished by applying an investment tax credit (10% during the year of purchase) and depreciation of previously purchased avionics (seven year, straight line, no residual value) to the air carrier, air taxi and business/executive user groups. A 52% tax bracket was assumed in the calculations. The resulting annual after tax cash outlays were then converted to present value annual equivalents for each of the 98 user groups through the application of a 10% annual discount factor.

The individual user group annual after tax cash outlay and equivalent present value costs were processed to produce cumulative annual totals. Each of these four economic evaluation criteria (annual after tax cash outlay, cumulative to-date after tax cash outlay, annual present value costs and cumulative to-date present value costs) were then aggregated across all user groups to produce a single representative user group cost summary.

Finally, corresponding economic evaluation criteria from the FAA and user group cost summaries were totaled to produce the

combined FAA plus user group annual cost summary required for each alternative navigation system and implementation scenario combination examined.

A.2.2 User Group Definition

A necessary task of the RAANS study was the categorization of the current civil aircraft population according to avionics capability, type of operation, region(s) of operation and aircraft type, and the derivation of forecasts for each resulting aircraft group. SCI (Vt) established the data requirements, formats and most of the categorization criteria. Most of the actual data derivation, however, was performed under an FAA contract by Advanced Technology, Inc. (ADTECH) [A1] using aviation forecasts provided by FAA Office of Aviation Policy (AVP), in close coordination with SCI (Vt).

While the ADTECH results were delivered per the initial requirements, some "post-processing" was required in order to redefine certain classification criteria and reformat the data for direct use in the RAANS study. The purpose of this section is to delineate all of the processing performed on the ADTECH inputs, and to present the final user categorization and forecast results.

Processing of the ADTECH inputs involved six separate steps. These were as follows:

(1) The avionics category definitions were redefined so as to be compatible with the avionics definitions that ultimately resulted from this study's avionics cost estimation effort. This step also included the deletion, from the population of interest, of aircraft which do not currently have or are projected to have VOR or equivalent equipment.

(2) Aircraft having "long range" avionics capability (INS, doppler radar, Omega), with a region of operation designated as CONUS-only, were changed to the CONUS-oceanic or CONUS-CONUS off-shore regions. This change was predicted on the assumption that these avionics are satisfying a user requirement.

(3) Several user and aircraft type categories were combined to simplify the overall results and produce a more efficient data base for subsequent data processing (this was accomplished without perturbing the avionics category or operating region(s) information which are of prime concern).

(4) Several changes of some substance were made in order to reconcile differences between the data and other (FAA and SCI (Vt)) information sources.

(5) Seven aircraft groups, having three or fewer aircraft throughout the time frame of interest (1976-2000), were combined with other more dominant groups (this did involve a perturbation of the avionics information but the populations involved are believed to be insignificant).

(6) The ADTECH projections were from the year 1977 through 2000, with the "net population" data explicitly defined to apply to Jan. 1 of each year. RAANS methodology was programmed to expect "net population" at the end of each year. Hence, the Jan. 1 date was artificially changed to Dec. 31st of the previous year. This resulted in projections from 1976-1999. Projections for the year 2000 were made via direct linear extrapolation of the 1998-1999 results.

With the exception of the last processing step, which is considered self-explanatory, each of the remaining five steps is described in detail below.

Category Redefinition

As mentioned, ADTECH sorted the current aircraft population according to four criteria: (1) avionics category, (2) type of operation, (3) region(s) of operation, and (4) aircraft type. The specific definitions utilized in this classification procedure are shown in Table A.1 (taken from Ref. A1). The current aircraft population was divided into groups with common characteristics in each of the four sorting criteria. In all, this resulted in 314 combinations or groups.

For the purpose of avionics unit cost estimation, SCI (Vt) embarked on a parallel effort to identify various typical avionics configurations. For each configuration, cost estimates were

Table A.1

ADTECH Aircraft Population Categories

CODE	AIRCRAFT TYPE
1	4-Engine Jet
2	3-Engine Jet
3	1-2-Engine Jet
4	Turboprop
5	4-Engine Piston
6	2-3-Engine Piston
7	1-Engine Piston
8	Helicopters

CODE	TYPE OF OPERATION
1	Air Carrier
2	Air Taxi
3	Executive
4	Business
5	Personal
6	Other

CODE	AVIONICS CATEGORY					
	VHF	ILS	VOR	DME	RNAV	LR
1	0	0	0	0	0	0
2	0		(X or	X or	X)	0
3	X		0	0	0	0
4	X	0	X	0	0	0
5	X	X	X	0	0	0
6	X	0		X	0	0
7	X	X		X	0	0
8	X	0			X	0
9	X	X			X	0
10	X	X	X	X		X

X - Yes, the aircraft has this type of equipment
0 - No, the aircraft does not have this type of equipment
Blank - The aircraft may or may not have this type of equipment

CODE	AREA OF OPERATION				
	CONUS	CONUS/O.S.	OCEANIC	ALASKA	ALASKA/O.S.
1	X				
2	X			X	
3	X	X			
4	X		X		
5	X		X	X	
6	X	X		X	X
7				X	
8				X	X
9			X	X	

generated, including year of production and cumulative production to that date. This effort required the consideration of configurations with dual avionics, as well as distinctions between the sophistication (and costs) of units with similar basic functions. The data base utilized by ADTECH did not contain information regarding dual equipment or costs. Thus, there was not a one to

one match between the ADTECH and SCI (Vt) avionic equipment definitions. These inconsistencies were resolved by translating the ADTECH avionics categories into the SCI (Vt) avionic categories. The avionics category definitions developed by SCI (Vt) are listed in Table A.2.

To facilitate converting from the ADTECH to the SCI (Vt) avionics categories, a series of matrices were tabulated which show, for each ADTECH avionics category, the number of aircraft by type of operation and aircraft type. These matrices are shown in Table A.3. The subdivision by aircraft type permitted these characteristics to be used as a part of the conversion process. For ADTECH avionics categories 1-9, region of operation was not considered in the conversion process. ADTECH avionics category 10 was handled separately, and region of operation was considered. The type of operation/aircraft type/region of operation matrices for ADTEC avionics category 10 is presented in Table A.3-J.

Each matrix entry (of Table A.3), which indicates the number of aircraft of a given ADTECH avionics category, type of operation and aircraft type, were re-categorized into a maximum of two

Table A.2

SCI (Vt) Avionics Category Definitions for Use in the RAANS Study

CATEGORY	NAME	AVIONICS EQUIPPAGE (BY NUMBER OF UNITS AND DEGREE OF SOPHISTICATION*)				
		VOR	DME	RNAV	INS**	OTHER "LONG RANGE"**
1	VFR	1 (A)				1
2	Low Cost GA	2 (A)				1
3	Intermediate Cost GA	2 (B)	1 (B)			1
4	High Cost GA	2 (C)	1 (C)			1
5	Intermediate Cost GA RNAV	2 (B)	1 (B)	1 (B)		1
6	High Cost GA RNAV	2 (C)	1 (C)	1 (C)		1
7	AC IFR Level 1	2 (D)	2 (D)			2
8	AC IFR Level 2	2 (D)	2 (D)		2	
9	AC IFR Level 3	2 (D)	2 (D)		3	
10	AC RNAV	2 (D)	2 (D)	1 (D)	2	

*Avionics sophistication, reliability and cost range from the units representing unsophisticated (A) to the units representing high sophistication, air carrier type, of equipment (D).

**This equipment is assumed to exist only on aircraft operating off-shore or oceanic.

SCI (Vt) avionics categories. The per cent distribution of the given aircraft population into the specified SCI avionics category(s) are indicated by the ( ) remarks located below each population figure.

The division of a group of aircraft into two avionics categories, as was frequently done, involved processing a string of 25 annual projections of new and retired aircraft. These data were usually numerically small, producing integerization difficulties. The net population, plus the new, minus the retired did not necessarily automatically add up the next year's net value. These difficulties were resolved when dividing one group into two avionics categories. However, the development of processing logic to divide a group into three or more categories did not appear to be warranted. Hence, divisions of ADTECH user group populations was limited to a maximum of two SCI categories.

The re-classification, or conversion, logic was developed as follows:

(a) ADTECH categories 1, 3 (Tables A.3A and A.3C): These categories were ignored, since aircraft in these classes do not have VOR capability and therefore would presumably not be affected by the potential FAA navigation system strategies being considered.

(b) ADTECH categories 4-9 (Tables A.3D through A.3I): For each of these classes, the first step in deriving the conversion logic was to determine the SCI (Vt) avionics categories which are based on similar or compatible avionics capabilities. For example, ADTECH category 4 is composed of aircraft with a VOR (one or more) but no DME and no RNAV. These aircraft would be re-categorized into other SCI (Vt) categories 1 or 2 (all other SCI (Vt) classes include DME and/or RNAV).

The specific manner in which ADTECH category 4 was divided into SCI categories 1 and 2 was based primarily on judgment. In this instance, the larger aircraft and more sophisticated users were placed in category 2 (dual VOR). Only single engine prop aircraft and helicopters, operated for "personal" and "other" purposes, were presumed to have single VOR. The percent values, identifying that fraction of the aircraft being placed in category 1, was selected so as to produce a final

Table A.3-A
ADTECH Avionics Category: 1

1975 Aircraft Population: 32,017 **Per Cent of Total Population: 17.64**

ADTECH AIRCRAFT TYPE	ADTECH TYPE OF OPERATION CATEGORY					
	1 AIR CARRIER	2 AIR TAXI	3 EXECUTIVE	4 BUSINESS	5 PERSONAL	6 OTHER
1 4 ENGINE JET	ALL AIRCRAFT IN THIS ADTECH AVIONICS CATEGORY DID NOT HAVE AT LEAST A SINGLE VOR AND WERE THEREFORE NOT INCLUDED IN SUBSEQUENT RAAKS ANALYSES.					
2 3 ENGINE JET						
3 1 OR 2 ENGINE JET						22
4 TURBOPROP					46	46
5 4 ENGINE PISTON				28		56
6 2 OR 3 ENGINE PISTON			28	28	28	366
7 SINGLE ENGINE PISTON		45	23	2,301	18,140	9,250
8 HELICOPTERS		77		86	685	762

NOTE: ( ) Indicates Per Cent Distribution of Given ADTECH Aircraft Population Into SCI Avionics Category(s).

Table A.3-B
ADTECH Avionics Category: 2

1975 Aircraft Population: 8,159 **Per Cent of Total Population: 4.50**

ADTECH AIRCRAFT TYPE	ADTECH TYPE OF OPERATION CATEGORY					
	1 AIR CARRIER	2 AIR TAXI	3 EXECUTIVE	4 BUSINESS	5 PERSONAL	6 OTHER
1 4 ENGINE JET						
2 3 ENGINE JET						
3 1 OR 2 ENGINE JET				22 (20% SCI #7) (80% SCI #10)		
4 TURBOPROP					75 (29% SCI #4) (71% SCI #6)	46 (20% SCI #2) (80% SCI #4)
5 4 ENGINE PISTON						
6 2 OR 3 ENGINE PISTON		225 (25% SCI #2) (75% SCI #4)	84 (65% SCI #4) (35% SCI #6)	339 (53% SCI #3) (47% SCI #4)		56 (47% SCI #2) (53% SCI #3)
7 SINGLE ENGINE PISTON		69 (91% SCI #2) (9% SCI #4)	23 (63% SCI #2) (37% SCI #6)	1,599 (75% SCI #2) (25% SCI #3)	4,868 (68% SCI #1) (32% SCI #2)	732 (81% SCI #1) (19% SCI #2)
8 HELICOPTERS					21 (80% SCI #1) (20% SCI #2)	

NOTE: ( ) Indicates Per Cent Distribution of Given ADTECH Aircraft Population Into SCI Avionics Category(s).

Table A.3-C
ADTECH Avionics Category: 3

1975 Aircraft Population: 8,360 Per Cent of Total Population: 4.61

ADTECH AIRCRAFT TYPE	ADTECH TYPE OF OPERATION CATEGORY					
	1 AIR CARRIER	2 AIR TAXI	3 EXECUTIVE	4 BUSINESS	5 PERSONAL	6 OTHER
1 4 ENGINE JET	ALL AIRCRAFT IN THIS ADTECH AVIONICS CATEGORY DID NOT HAVE AT LEAST A SINGLE VOR AND WERE THEREFORE NOT INCLUDED IN SUBSEQUENT RAANS ANALYSES.					
2 3 ENGINE JET						
3 1 OR 2 ENGINE JET						
4 TURBOPROP			46		46	23
5 4 ENGINE PISTON						28
6 2 OR 3 ENGINE PISTON		56		56	28	169
7 SINGLE ENGINE PISTON		136	91	646	3,877	1,521
8 HELICOPTERS		696	149	235	128	429

NOTE: ( ) Indicates Per Cent Distribution of Given ADTECH Aircraft Population Into SCI Avionics Category(s)

Table A.3-D
ADTECH Avionics Category: 4

1975 Aircraft Population: 57,861 Per Cent of Total Population: 31.89

ADTECH AIRCRAFT TYPE	ADTECH TYPE OF OPERATION CATEGORY					
	1 AIR CARRIER	2 AIR TAXI	3 EXECUTIVE	4 BUSINESS	5 PERSONAL	6 OTHER
1 4 ENGINE JET						
2 3 ENGINE JET						
3 1 OR 2 ENGINE JET						
4 TURBOPROP					29 (100% SCI #2)	46 (100% SCI #2)
5 4 ENGINE PISTON			28 (100% SCI #2)			
6 2 OR 3 ENGINE PISTON		112 (100% SCI #2)	84 (100% SCI #2)	310 (100% SCI #2)	260 (100% SCI #2)	226 (100% SCI #2)
7 SINGLE ENGINE PISTON		1,089 (100% SCI #2)	181 (100% SCI #2)	11,341 (100% SCI #2)	37,757 (75% SCI #1) (25% SCI #2)	5,852 (90% SCI #1) (10% SCI #2)
8 HELICOPTERS		135 (100% SCI #2)	46 (100% SCI #2)	108 (100% SCI #2)	64 (80% SCI #1) (20% SCI #2)	193 (25% SCI #1) (75% SCI #2)

NOTE: ( ) Indicates Per Cent Distribution of Given ADTECH Aircraft Population Into SCI Avionics Category(s).

Table A.3-E
ADTECH Avionics Category: 5

1975 Aircraft Population: 28,810 Per Cent of Total Population: 15.88

ADTECH AIRCRAFT TYPE	ADTECH TYPE OF OPERATION CATEGORY					
	1 AIR CARRIER	2 AIR TAXI	3 EXECUTIVE	4 BUSINESS	5 PERSONAL	6 OTHER
1 4 ENGINE JET						
2 3 ENGINE JET						
3 1 OR 2 ENGINE JET						22 (100% SCI #2)
4 TURBOPROP						
5 4 ENGINE PISTON				28 (100% SCI #2)		29 (100% SCI #2)
6 2 OR 3 ENGINE PISTON		477 (100% SCI #2)	140 (100% SCI #2)	1,040 (100% SCI #2)	674 (100% SCI #2)	534 (100% SCI #2)
7 SINGLE ENGINE PISTON		1,739 (100% SCI #2)	204 (100% SCI #2)	8,177 (100% SCI #2)	13,298 (50% SCI #1) (50% SCI #2)	2,406 (60% SCI #1) (40% SCI #2)
8 HELICOPTERS				21 (100% SCI #2)		21 (10% SCI #1) (90% SCI #2)

NOTE: ( ) Indicates Per Cent Distribution of Given ADTECH Aircraft Population into SCI Avionics Category(s).

Table A.3-F
ADTECH Avionics Category: 6

1975 Aircraft Population: 3,422 Per Cent of Total Population: 1.89

ADTECH AIRCRAFT TYPE	ADTECH TYPE OF OPERATION CATEGORY					
	1 AIR CARRIER	2 AIR TAXI	3 EXECUTIVE	4 BUSINESS	5 PERSONAL	6 OTHER
1 4 ENGINE JET						
2 3 ENGINE JET	ALL AIRCRAFT IN THIS ADTECH AVIONICS CATEGORY PLACED IN SCI AVIONICS CATEGORY #3					
3 1 OR 2 ENGINE JET			22			
4 TURBOPROP				23		
5 4 ENGINE PISTON						
6 2 OR 3 ENGINE PISTON		84	84	374	84	85
7 SINGLE ENGINE PISTON		45	91	1,118	1,208	182
8 HELICOPTERS						22

NOTE: ( ) Indicates Per Cent Distribution of Given ADTECH Aircraft Population into SCI Avionics Category(s).

Table A.3-G
ADTECH Avionics Category: 7

1975 Aircraft Population: 25,762 Per Cent of Total Population: 14.20

ADTECH AIRCRAFT TYPE	ADTECH TYPE OF OPERATION CATEGORY					
	1 AIR CARRIER	2 AIR TAXI	3 EXECUTIVE	4 BUSINESS	5 PERSONAL	6 OTHER
1 4 ENGINE JET	273 (86% SCI #7) (14% SCI #9)		22 (100% SCI #7)			29 (100% SCI #7)
2 3 ENGINE JET	920 (100% SCI #7)		22 (100% SCI #7)			
3 1 OR 2 ENGINE JET	539 (100% SCI #7)	22 (100% SCI #7)	493 (100% SCI #7)	67 (100% SCI #7)		67 (100% SCI #7)
4 TURBOPROP	260 (100% SCI #7)	184 (100% SCI #4)	690 (100% SCI #4)	374 (100% SCI #4)	46 (100% SCI #4)	184 (100% SCI #4)
5 4 ENGINE PISTON		28 (100% SCI #4)	28 (100% SCI #4)			28 (100% SCI #4)
6 2 OR 3 ENGINE PISTON	111 (100% SCI #7)	1,797 (100% SCI #4)	1,600 (100% SCI #4)	6,220 (50% SCI #3) (50% SCI #4)	1,263 (75% SCI #3) (25% SCI #4)	788 (100% SCI #3)
7 SINGLE ENGINE PISTON		278 (100% SCI #4)	204 (100% SCI #4)	5,250 (100% SCI #3)	3,360 (100% SCI #3)	522 (100% SCI #3)
8 HELICOPTERS			46 (100% SCI #4)	21 (100% SCI #3)		26 (100% SCI #3)

NOTE: ( ) Indicates Per Cent Distribution of Given ADTECH Aircraft Population Into SCI Avionics Category(s).

Table A.3-H
ADTECH Avionics Category: 8

1975 Aircraft Population: 4,749 Per Cent of Total Population: 2.62

ADTECH AIRCRAFT TYPE	ADTECH TYPE OF OPERATION CATEGORY					
	1 AIR CARRIER	2 AIR TAXI	3 EXECUTIVE	4 BUSINESS	5 PERSONAL	6 OTHER
1 4 ENGINE JET						
2 3 ENGINE JET	ALL AIRCRAFT IN THIS ADTECH AVIONICS CATEGORY PLACED IN SCI AVIONICS CATEGORY #5					
3 1 OR 2 ENGINE JET			22			
4 TURBOPROP				23		23
5 4 ENGINE PISTON						
6 2 OR 3 ENGINE PISTON		28		85	84	28
7 SINGLE ENGINE PISTON		68	45	1,117	3,002	182
8 HELICOPTERS		21	21			

NOTE: ( ) Indicates Per Cent Distribution of Given ADTECH Aircraft Population Into SCI Avionics Category(s).

Table A.3-I
ADTECH Avionics Category: 9

1975 Aircraft Population: 11,471 **Per Cent of Total Population: 6.32**

ADTECH AIRCRAFT TYPE	ADTECH TYPE OF OPERATION CATEGORY					
	1 AIR CARRIER	2 AIR TAXI	3 EXECUTIVE	4 BUSINESS	5 PERSONAL	6 OTHER
1 4 ENGINE JET						22 (100% SCI #10)
2 3 ENGINE JET			22 (100% SCI #10)			22 (100% SCI #10)
3 1 OR 2 ENGINE JET		45 (100% SCI #10)	518 (100% SCI #10)	269 (100% SCI #10)		67 (100% SCI #10)
4 TURBOPROP		115 (100% SCI #6)	369 (100% SCI #6)	231 (100% SCI #6)	115 (100% SCI #6)	23 (100% SCI #6)
5 4 ENGINE PISTON						56 (100% SCI #6)
6 2 OR 3 ENGINE PISTON		421 (100% SCI #6)	849 (100% SCI #6)	1,939 (50% SCI #5) (50% SCI #6)	449 (75% SCI #5) (25% SCI #6)	253 (100% SCI #5)
7 SINGLE ENGINE PISTON		159 (100% SCI #6)	226 (100% SCI #6)	2,517 (100% SCI #5)	2,514 (100% SCI #5)	182 (100% SCI #5)
8 HELICOPTERS			43 (100% SCI #6)	23 (100% SCI #5)	23 (100% SCI #5)	22 (100% SCI #5)

NOTE: ( ) Indicates Per Cent Distribution of Given ADTECH Aircraft Population Into SCI Avionics Category(s).

Table A.3-J-1
ADTECH Avionics Category: 10 (Long-Range)

ADTECH Operating Region Combination: 1 (CONUS)
1975 Aircraft Population: 225 Per Cent of Total Population: 0.12

ADTECH AIRCRAFT TYPE	ADTECH TYPE OF OPERATION CATEGORY					
	1 AIR CARRIER	2 AIR TAXI	3 EXECUTIVE	4 BUSINESS	5 PERSONAL	6 OTHER
1 4 ENGINE JET	48 (100% SCI #8) *		11 (100% SCI #7) *			
2 3 ENGINE JET						
3 1 OR 2 ENGINE JET						
4 TURBOPROP		23 (100% SCI #4) **	46 (100% SCI #4) **			
5 4 ENGINE PISTON						28 (100% SCI #4) **
6 2 OR 3 ENGINE PISTON						
7 SINGLE ENGINE PISTON		23 (100% SCI #4) **		23 (100% SCI #4) **	23 (100% SCI #3) **	
8 HELICOPTERS						

NOTE: ( ) Indicates Per Cent Distribution of Given ADTECH Aircraft Population Into SCI Avionics Category(s).

*Moved to CONUS-Oceanic operating regions, SCI region category #4.

**Moved to CONUS-CONUS off-shore operating regions, SCI region category #3.

Table A.3-J-2
ADTECH Avionics Category: 10 (Long-Range)

ADTECH Operating Region Combination: 4 (CONUS, Oceanic)
1975 Aircraft Population: 544 Per Cent of Total Population: 0.30

ADTECH AIRCRAFT TYPE	ADTECH TYPE OF OPERATION CATEGORY					
	1 AIR CARRIER	2 AIR TAXI	3 EXECUTIVE	4 BUSINESS	5 PERSONAL	6 OTHER
1 4 ENGINE JET	255 (76% SCI #7) (24% SCI #9)		72 (80% SCI #7) (20% SCI #8)			29 (100% SCI #7)
2 3 ENGINE JET	73 (73% SCI #7) (27% SCI #8)					
3 1 OR 2 ENGINE JET			86 (50% SCI #7) (50% SCI #8)			
4 TURBOPROP			29 (100% SCI #7)			
5 4 ENGINE PISTON						
6 2 OR 3 ENGINE PISTON						
7 SINGLE ENGINE PISTON						
8 HELICOPTERS						

NOTE: ( ) Indicates Per Cent Distribution of Given ADTECH Aircraft Population Into SCI Avionics Category(s).

Table A.3-J-3
ADTECH Avionics Category: 10 (Long-Range)

ADTECH Operating Region Combination: 5 (CONUS, Oceanic, Alaska)
1975 Aircraft Population: 77 Per Cent of Total Population: 0.04

ADTECH AIRCRAFT TYPE	ADTECH TYPE OF OPERATION CATEGORY					
	1 AIR CARRIER	2 AIR TAXI	3 EXECUTIVE	4 BUSINESS	5 PERSONAL	6 OTHER
1 4 ENGINE JET	32 (53% SCI #7) (47% SCI #8)					
2 3 ENGINE JET	45 (100% SCI #7)					
3 1 OR 2 ENGINE JET						
4 TURBOPROP						
5 4 ENGINE PISTON						
6 2 OR 3 ENGINE PISTON						
7 SINGLE ENGINE PISTON						
8 HELICOPTERS						

NOTE: ( ) Indicates Per Cent Distribution of Given ADTECH Aircraft Population Into SCI Avionics Category(s).

population of single VOR (category 1) aircraft which was consistent with information obtained from a variety of other sources and company experience. The conversion logic for the other classes (5-9) were similarly developed.

ADTECH category 2 (Table A.3B): ADTECH category 2 was a "default" category; i.e., aircraft were placed in this category only when they did not fit in any other. Further, the equipment assumptions for this category are not meaningful. Specifically, category 2 is composed of aircraft without communications equipment, but with navigational avionics (VOR at least). Initially, this category was to be ignored (due to lack of communication capability), but it was later decided to assume that the communication information was in error. The aircraft were therefore included (i.e., converted to appropriate SCI categories and utilized in the analysis). The ADTECH definition for this category, however, did not give any information about avionics. Thus, each user group/aircraft type combination (of category 2) was placed into two SCI (Vt) categories, which were selected by determining the two most dominant avionics categories into which the specific user/aircraft combination was most frequently placed (based on reviewing the conversion logic used for the other ADTECH categories). The per cent of the aircraft to go in each of these two categories was selected so that, as a general rule, the aircraft of category 2 were placed into the same SCI categories in the same proportions, as the aircraft of ADTECH categories 4-9.

Conversion of ADTECH Category 10, "Long Range" Avionics, Table A.3J): The "long range" avionics category includes all aircraft with INS, Doppler Radar, Omega, or similar equipment. Within the RAANS methodology, users will not be assumed to have this equipment unless they have a requirement for it based on their region(s) of operation. Further, the avionics categorization is not supposed to take into account the existence of this capability, but rather to establish the avionics class so that the sophistication and cost of the equipment can be predicted, given that a requirement exists.

The conversion logic for these aircraft was based, in part, on their region(s) of operation, and is shown in Table A.3J. The division of aircraft into SCI categories 7, 8 and 9 was accomplished so as to produce numbers of "dual-INS" aircraft (category 8) and "triple-INS" aircraft (category 9) equal to estimates obtained from industry sources.

Aircraft in region combination 4 (CONUS-oceanic) and 5 (CONUS-Alaska-Oceanic) will, within the RAANS study, be assumed to have "long range" avionics by virtue of their operating regions. Hence, the current existence of these units will not be lost. The "CONUS-only" aircraft, however, will be assumed not to have this capability. For the purpose of this study, these aircraft (CONUS-only, "long range") could either have been left in the CONUS-only region, in which case their current "long range" equipment would have been ignored, or they could have been converted to the CONUS-oceanic (4) or *CONUS-CONUS off-shore (3) regions.* This latter approach was adopted. Jet aircraft (aircraft types 1,2,3) were converted to CONUS-oceanic. All other aircraft were converted to CONUS-CONUS off-shore.

Combining of Sub-categories

As previously mentioned, the primary intent of the categorization process is to identify avionics class and region combination, since both of these factors affect avionics purchases and subsequently user costs. Categorization by type of operation and aircraft type were performed primarily to facilitate the avionics categorization process (although different types of operations are also handled differently in terms of tax accounting considerations). Thus, once the avionics category conversion process was completed, some of the type of operation and aircraft type subcategories were no longer of primary interest. By combining these subcategories, the resulting data base was condensed, providing more efficient data processing.

Table A.4 illustrates the manner in which the subcategories were combined. Executive and business users were merged. The personal and "other" subcategories were also merged. Three and four engine jets were combined; as were all prop aircraft. It is important to note that avionics category and region of operation were left as originally defined. For example, 3-engine jets were not combined with 4-engine jets unless their respective type of operation, regions of operation and avionics classes were identical.

"Changes" to the ADTECH Data

Several changes of some substance were made to the ADTECH data, in order to reconcile discrepancies between these data and other data sources. These changes are summarized below:

(1) The ADTECH data indicated that there were 505 prop aircraft operating in CONUS-CONUS off-shore. While this may well be literally true, it is not expected that this many aircraft have suitable navigation equipment or an IFR requirement for off-shore operation. Thus, those prop aircraft without "long range" capability were moved to CONUS-only; reducing the CONUS off-shore prop aircraft to 166, which was considered more reasonable.

(2) The ADTECH data included no aircraft (or helicopters) in the CONUS-ALASKA-CONUS off-shore-Alaska off-shore operating region category. Of the 63 helicopters identified by ADTECH as operating CONUS-CONUS off-shore, 28 (25% selected from "exec-business" users) were moved to the CONUS-Alaska-CONUS off-shore-Alaska off-shore operating region.

(3) The ADTECH data included no helicopters in Alaska-Alaska off-shore. Of the 28 Alaska (on-shore only) helicopters, 8 (30%) were moved to the Alaska-Alaska off-shore operating region.

(4) The ADTECH data included far too many RNAV aircraft (16,352). Recent FAA data indicated that there are roughly 8,500 "intermediate GA-RNAV" aircraft (SCI category 5), 250 "high-cost GA-RNAV" aircraft (category 6), and 250 "air-carrier level" RNAV aircraft (category 10). The data base was altered to reflect these estimates. Aircraft from which the RNAV capability was "removed" were placed in their respective non-RNAV categories.

Table A.4

Combining of Subcategories

USER CLASSES			
ORIGINAL INDEX (ADTECH)	DEFINITION	NEW SCI INDEX	NEW DEFINITION
1	Air Carrier	1	Air Carrier
2	Air Taxi	2	Air Taxi*
3	Executive	3	Executive/ Business
4	Business		
5	Personal	4	Personal/ Other
6	Other		
AIRCRAFT TYPES			
ORIGINAL INDEX (ADTECH)	DEFINITION	NEW SCI INDEX	NEW DEFINITION
1	4-Engine Jet	1	3-4 Engine Jet
2	3-Engine Jet		
3	1-2 Engine Jet	2	1-2 Engine Jet
4	Turboprop		
5	4-Engine Piston	3	Prop
6	2-3 Engine Piston		
7	1-Engine Piston		
8	Helicopter	4	Helicopter

*Includes Commuter Operators

Reclassification of Groups with Insignificant Population

The avionics category conversions, in conjunction with the type of operation and aircraft type combining in addition to the data alteration activities, reduced the original 314 aircraft groups to 105. While 105 aircraft groups was considered a reasonably manageable number, there were 7 of these groups whose population was never projected to exceed three. It was not considered worthwhile to explicitly process these groups. They were therefore merged into other groups according to greatest categorization similarity. In each case, the re-categorization involved alteration of only the avionics category. The groups involved together with the resulting avionics category alteration are shown in Table A.5.

Table A.5

Transformation of Low Population User Groups

		AVIONICS CATEGORY	TYPE OF OPERATION	REGION COMB.	AIRCRAFT TYPE	1976 POP.	2000 POP.
(1)	CHANGE						
	From	1	4	3	4	1	3
	To	2	4	3	4		
(2)	CHANGE						
	From	2	4	8	3	0	2
	To	1	4	8	3		
(3)	CHANGE						
	From	3	3	3	4	0	1
	To	2	3	3	4		
(4)	CHANGE						
	From	4	3	8	3	0	1
	To	3	3	8	3		
(5)	CHANGE						
	From	5	3	8	3	1	2
	To	3	3	8	3		
(6)	CHANGE						
	From	5	4	3	4	1	2
	To	3	4	3	4		
(7)	CHANGE						
	From	6	3	8	3	0	2
	To	3	3	8	3		

User Categorization and Fleet Forecast Results

The resulting final division of the 1977 aircraft fleet into SCI user groups is presented in Table A.6. Annual projections of new, retired and net aircraft for each of SCI's 98 user groups is presented in Table A.7. Illustrations of the resulting fleet projections for each type of operation (air carrier, air taxi, exeuctive/business, and personal/other) are presented in Figures A.3-A.7. The "peaks and valley" reflect FAA (AVP) forecasts which were the basis of the ADTECH projections.

Table A.6
SCI (Vt) User Group Definitions and 1977 Aircraft Populations

TYPE OF OPERATION - AIR CARRIER 1977 DATA

REGION: CONUS

ACTYPE	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	0	0
IC-GA	0	0	0	0	0
HC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
HC-GAR	0	0	0	0	0
AC-IF1	1031	565	298	0	1894
AC-IF2	0	0	0	0	0
AC-IF3	38	0	0	0	38
ACRNAV	0	0	0	0	0
TOTAL	1069	565	298	0	1932

REGION: CON-AK

ACTYPE	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	0	0
IC-GA	0	0	0	0	0
HC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
HC-GAR	0	0	0	0	0
AC-IF1	168	0	0	0	168
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	168	0	0	0	168

REGION: CON-OS

ACTYPE	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	0	0
IC-GA	0	0	0	0	0
HC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
HC-GAR	0	0	0	0	0
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	0	0	0

REGION: CON-OC

ACTYPE	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	0	0
IC-GA	0	0	0	0	0
HC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
HC-GAR	0	0	0	0	0
AC-IF1	298	0	0	0	298
AC-IF2	68	0	0	0	68
AC-IF3	60	0	0	0	60
ACRNAV	0	0	0	0	0
TOTAL	376	0	0	0	376

REGION: C-A-OC

ACTYPE	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	0	0
IC-GA	0	0	0	0	0
HC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
HC-GAR	0	0	0	0	0
AC-IF1	64	0	0	0	64
AC-IF2	15	0	0	0	15
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	79	0	0	0	79

REGION: C-A-OS

ACTYPE	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	0	0
IC-GA	0	0	0	0	0
HC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
HC-GAR	0	0	0	0	0
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	0	0	0

REGION: ALASKA

ACTYPE	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	0	0
IC-GA	0	0	0	0	0
HC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
HC-GAR	0	0	0	0	0
AC-IF1	0	12	44	0	55
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	12	44	0	55

REGION: AK-OS

ACTYPE	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	0	0
IC-GA	0	0	0	0	0
HC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
HC-GAR	0	0	0	0	0
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	0	0	0

REGION: TOTAL

ACTYPE	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	0	0
IC-GA	0	0	0	0	0
HC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
HC-GAR	0	0	0	0	0
AC-IF1	1520	577	342	0	2439
AC-IF2	83	0	0	0	83
AC-IF3	98	0	0	0	98
ACRNAV	0	0	0	0	0
TOTAL	1701	577	342	0	2620

Table A.6 (Continued)

TYPE OF OPERATION - AIR TAXI 1977 DATA

REGION:CONUS
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	3492	112	3604
IC-GA	0	0	167	0	167
HC-GA	0	0	3278	0	3278
IC-GAR	0	0	71	22	93
HC-GAR	0	0	46	0	46
AC-IF1	0	65	0	0	65
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	9	0	0	9
TOTAL	0	74	7056	134	7262

REGION:CON-AK
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	21	0	21
IC-GA	0	0	0	0	0
HC-GA	0	0	6	0	6
IC-GAR	0	0	0	0	0
HC-GAR	0	0	0	0	0
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	27	0	27

REGION:CON-OS
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	0	0
IC-GA	0	0	0	0	0
HC-GA	0	0	49	0	49
IC-GAR	0	0	0	0	0
HC-GAR	0	0	0	0	0
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	49	0	49

REGION:CON-OC
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	0	0
IC-GA	0	0	0	0	0
HC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
HC-GAR	0	0	0	0	0
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	0	0	0

REGION:C-A-OC
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	0	0
IC-GA	0	0	0	0	0
HC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
HC-GAR	0	0	0	0	0
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	0	0	0

REGION:C-A-OS
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	0	0
IC-GA	0	0	0	0	0
HC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
HC-GAR	0	0	0	0	0
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	0	0	0

REGION:ALASKA
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	195	21	216
IC-GA	0	0	0	0	0
HC-GA	0	0	30	0	30
IC-GAR	0	0	0	0	0
HC-GAR	0	0	0	0	0
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	225	21	246

REGION:AK-OS
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	9	9
IC-GA	0	0	0	0	0
HC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
HC-GAR	0	0	0	0	0
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	0	9	9

REGION:TOTAL
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	3708	142	3850
IC-GA	0	0	167	0	167
HC-GA	0	0	3363	0	3363
IC-GAR	0	0	71	22	93
HC-GAR	0	0	46	0	46
AC-IF1	0	65	0	0	65
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	9	0	0	9
TOTAL	0	74	7355	164	7593

Table A.6 (Continued)

TYPE OF OPERATION - BUSINESS AND EXECUTIVE 1977 DATA

REGION:CONUS ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	23179	162	23341
IC-GA	0	32	12480	34	12546
HC-GA	0	0	9242	75	9317
IC-GAR	0	18	3470	28	3516
HC-GAR	0	0	174	3	177
AC-IF1	71	1363	0	0	1434
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	4	158	0	0	162
TOTAL	75	1571	48545	302	50493

REGION:CON-AK ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	41	0	41
IC-GA	0	0	12	0	12
HC-GA	0	0	14	0	14
IC-GAR	0	0	4	0	4
HC-GAR	0	0	1	0	1
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	16	0	0	16
TOTAL	0	16	72	0	88

REGION:CON-OS ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	7	7
IC-GA	0	0	0	0	0
HC-GA	0	0	75	0	75
IC-GAR	0	0	0	6	6
HC-GAR	0	0	0	0	0
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	75	13	88

REGION:CON-OC ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	0	0
IC-GA	0	0	0	0	0
HC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
HC-GAR	0	0	0	0	0
AC-IF1	74	66	31	0	151
AC-IF2	15	46	0	0	61
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	89	92	31	0	212

REGION:C-A-OC ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	0	0
IC-GA	0	0	0	0	0
HC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
HC-GAR	0	0	0	0	0
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	0	0	0

REGION:C-A-OS ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	15	15
IC-GA	0	0	0	0	0
HC-GA	0	0	0	15	15
IC-GAR	0	0	0	0	0
HC-GAR	0	0	0	0	0
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	0	30	30

REGION:ALASKA ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	564	0	564
IC-GA	0	0	171	0	171
HC-GA	0	0	88	0	88
IC-GAR	0	0	21	0	21
HC-GAR	0	0	2	0	2
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	846	0	846

REGION:AK-OS ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	12	0	12
IC-GA	0	0	5	0	5
HC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
HC-GAR	0	0	0	0	0
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	17	0	17

REGION:TOTAL ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	23796	184	23980
IC-GA	0	32	12668	34	12734
HC-GA	0	0	9419	90	9509
IC-GAR	0	18	3495	34	3547
HC-GAR	0	0	177	3	180
AC-IF1	145	1409	31	0	1585
AC-IF2	15	46	0	0	61
AC-IF3	0	0	0	0	0
ACRNAV	4	174	0	0	178
TOTAL	164	1679	49586	345	51774

Table A.6 (Continued)

TYPE OF OPERATION - PERSONAL AND OTHER 1977 DATA

REGION:CONUS
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	45977	124	46101
LC-GA	0	0	21477	185	21662
IC-GA	0	0	9531	38	9569
MC-GA	0	0	1020	0	1020
IC-GAR	0	0	3798	15	3813
MC-GAR	0	0	23	0	23
AC-IF1	0	135	0	0	135
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	50	13	0	0	63
TOTAL	50	148	82826	362	83386

REGION:CON-AK
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	86	0	86
LC-GA	0	0	49	0	49
IC-GA	0	0	26	0	26
MC-GA	0	0	0	0	0
IC-GAR	0	0	17	0	17
MC-GAR	0	0	0	0	0
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	178	0	178

REGION:CON-OS
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	4	4
IC-GA	0	0	24	20	44
MC-GA	0	0	30	0	30
IC-GAR	0	0	0	0	0
MC-GAR	0	0	0	0	0
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	54	24	78

REGION:CON-OC
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	0	0
IC-GA	0	0	0	0	0
MC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
MC-GAR	0	0	0	0	0
AC-IF1	31	0	0	0	31
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	31	0	0	0	31

REGION:C-A-OC
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	0	0
IC-GA	0	0	0	0	0
MC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
MC-GAR	0	0	0	0	0
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	0	0	0

REGION:C-A-OS
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	0	0
IC-GA	0	0	0	0	0
MC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
MC-GAR	0	0	0	0	0
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	0	0	0

REGION:ALASKA
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	1552	0	1552
LC-GA	0	0	624	0	624
IC-GA	0	0	73	0	73
MC-GA	0	0	32	0	32
IC-GAR	0	0	30	0	30
MC-GAR	0	0	1	0	1
AC-IF1	32	0	0	0	32
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	32	0	2312	0	2344

REGION:AK-OS
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	5	0	5
LC-GA	0	0	0	0	0
IC-GA	0	0	0	0	0
MC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
MC-GAR	0	0	0	0	0
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	5	0	5

REGION:TOTAL
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	47620	124	47744
LC-GA	0	0	22150	189	22339
IC-GA	0	0	9654	58	9712
MC-GA	0	0	1082	0	1082
IC-GAR	0	0	4845	15	4860
MC-GAR	0	0	24	0	24
AC-IF1	63	135	0	0	198
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	50	13	0	0	63
TOTAL	113	148	85375	386	86022

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Table A.6 (Continued)

TYPE OF OPERATION - ALL 1977 DATA

REGION:CONUS
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	45977	124	46101
LC-GA	0	0	48148	459	48607
IC-GA	0	32	22178	72	22282
MC-GA	0	0	13540	75	13615
IC-GAR	0	18	8334	65	8422
MC-GAR	0	0	243	3	246
AC-IF1	1102	2128	298	0	3528
AC-IF2	0	0	0	0	0
AC-IF3	38	0	0	0	38
ACRNAV	54	140	0	0	234
TOTAL	1194	2358	135723	798	140073

REGION:CON-AK
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	86	0	86
LC-GA	0	0	111	0	111
IC-GA	0	0	36	0	38
MC-GA	0	0	20	0	20
IC-GAR	0	0	21	0	21
MC-GAR	0	0	1	0	1
AC-IF1	168	0	0	0	168
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	16	0	0	16
TOTAL	168	16	277	0	461

REGION:CON-OS
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	11	11
IC-GA	0	0	24	20	44
MC-GA	0	0	154	0	154
IC-GAR	0	0	0	6	6
MC-GAR	0	0	0	0	0
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	178	37	215

REGION:CON-OC
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	0	0
IC-GA	0	0	0	0	0
MC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
MC-GAR	0	0	0	0	0
AC-IF1	353	46	31	0	430
AC-IF2	83	46	0	0	129
AC-IF3	60	0	0	0	60
ACRNAV	0	0	0	0	0
TOTAL	496	92	31	0	619

REGION:C-A-OC
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	0	0
IC-GA	0	0	0	0	0
MC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
MC-GAR	0	0	0	0	0
AC-IF1	64	0	0	0	64
AC-IF2	15	0	0	0	15
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	79	0	0	0	79

REGION:C-A-OS
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	0	0	0
LC-GA	0	0	0	15	15
IC-GA	0	0	0	0	0
MC-GA	0	0	0	15	15
IC-GAR	0	0	0	0	0
MC-GAR	0	0	0	0	0
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	0	30	30

REGION:TOTAL ALASKA
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	1552	0	1552
LC-GA	0	0	1383	21	1404
IC-GA	0	0	204	0	204
MC-GA	0	0	150	0	150
IC-GAR	0	0	51	0	51
MC-GAR	0	0	3	0	3
AC-IF1	41	12	44	0	97
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	41	12	3427	21	3501

REGION:AK-OS
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	5	0	5
LC-GA	0	0	12	9	21
IC-GA	0	0	5	0	5
MC-GA	0	0	0	0	0
IC-GAR	0	0	0	0	0
MC-GAR	0	0	0	0	0
AC-IF1	0	0	0	0	0
AC-IF2	0	0	0	0	0
AC-IF3	0	0	0	0	0
ACRNAV	0	0	0	0	0
TOTAL	0	0	22	9	31

REGION:TOTAL
ACTYPE

AV CAT	JET3-4	JET1-2	PROP.	HELI.	TOTAL
VFR	0	0	47620	124	47744
LC-GA	0	0	49654	515	50169
IC-GA	0	32	22489	92	22613
MC-GA	0	0	13864	90	13954
IC-GAR	0	18	8411	71	8500
MC-GAR	0	0	247	3	250
AC-IF1	1728	2186	373	0	4287
AC-IF2	98	46	0	0	144
AC-IF3	98	0	0	0	98
ACRNAV	54	196	0	0	250
TOTAL	1978	2478	142658	895	148009

Table A.7

OUTPUT FORMAT KEY

(Avionics category, type of operation, region combinations, aircraft type)

USER GROUP FORECASTS

CATEGORY DEFINITIONS

AVIONICS CAT.	TYPE OF OPER.	REGION COMB.			AC TYPE
1. VFR	1. AIR CARRIER	1. CONUS			1. 3-4 ENG. JE
2. LOW COST GA	2. AIR TAXI	2. CONUS	ALASKA		2. 1-2 ENG. JE
3. INT. COST GA	3. EXEC-BUS.	3. CONUS	CONUS OFF-SH		3. PISTON
4. HIGH COST GA	4. PER-OTHER	4. CONUS	OCEANIC		4. HELICOPTER
5. INT. COST GA RNAV		5. CONUS	ALASKA	OCEANIC	
6. HIGH COST GA RNAV		6. CONUS	ALASKA	CONUS OFF-SH AKA OFF-SH	
7. AC IFR LEVEL 1		7. ALASKA			
8. AC IFR LEVEL 2		8. ALASKA	AKA OFF-SH		
9. AC IFR LEVEL 3					
10. AC RNAV					

Table A.7

Aircraft Population Forecasts by User Group

YEAR	GROUP 1(1, 4, 1, 3)			GROUP 2(1, 4, 1, 4)			GROUP 3(1, 4, 2, 3)			GROUP 4(1, 4, 7, 3)			GROUP 5(1, 4, 8, 3)		
	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET
1978	2279.	919.	47337.	8.	4.	126.	4.	2.	88.	92.	31.	1613.	0.	0.	5.
1979	2366.	947.	48758.	6.	3.	131.	6.	2.	92.	124.	33.	1704.	0.	0.	5.
1980	3043.	975.	50826.	7.	2.	136.	9.	4.	97.	124.	32.	1796.	0.	0.	5.
1981	3795.	1017.	53604.	12.	3.	145.	8.	1.	104.	156.	37.	1915.	2.	0.	7.
1982	2559.	1074.	55089.	7.	2.	150.	7.	4.	107.	127.	38.	2004.	0.	0.	7.
1983	1726.	1103.	55714.	7.	5.	152.	6.	3.	110.	99.	41.	2062.	0.	0.	7.
1984	2290.	1113.	56891.	4.	2.	154.	6.	3.	113.	99.	42.	2119.	0.	0.	7.
1985	2587.	1142.	58316.	8.	2.	160.	5.	2.	116.	129.	42.	2206.	0.	0.	7.
1986	2684.	1164.	59856.	5.	4.	161.	9.	4.	121.	130.	44.	2292.	0.	0.	7.
1987	2811.	1199.	61448.	9.	3.	167.	6.	4.	123.	131.	46.	2377.	2.	1.	8.
1988	365	1231.	63873.	0.	6.	161.	8.	1.	130.	196.	46.	2527.	0.	0.	8.
1989	3826.	1276.	66421.	10.	1.	170.	11.	4.	137.	183.	50.	2660.	0.	0.	8.
1990	4120.	1328.	69213.	12.	5.	177.	10.	3.	144.	202.	54.	2808.	1.	0.	9.
1991	4302.	1383.	72132.	13.	4.	186.	10.	4.	150.	213.	57.	2964.	0.	0.	9.
1992	4487.	1444.	75175.	12.	5.	193.	11.	2.	159.	225.	60.	3129.	2.	0.	11.
1993	4649.	1503.	78321.	13.	3.	203.	13.	5.	167.	235.	63.	3301.	0.	0.	11.
1994	4877.	1567.	81631.	12.	4.	211.	12.	3.	176.	250.	67.	3484.	1.	1.	11.
1995	5105.	1633.	85103.	14.	4.	221.	14.	4.	186.	260.	69.	3675.	1.	0.	12.
1996	5359.	1702.	88760.	14.	3.	232.	12.	3.	195.	277.	73.	3879.	0.	0.	12.
1997	5690.	1777.	92473.	14.	5.	241.	14.	5.	204.	289.	77.	4091.	1.	0.	13.
1998	5877.	1851.	96499.	16.	3.	254.	17.	7.	214.	309.	81.	4319.	2.	0.	15.
1999	6052.	1933.	100618.	16.	5.	265.	17.	5.	226.	326.	88.	4557.	0.	0.	15.
2000	6052.	1933.	104737.	16.	5.	276.	17.	5.	238.	326.	88.	4795.	0.	0.	15.
2001	0.	0.	104737.	0.	0.	276.	0.	0.	238.	0.	0.	4795.	0.	0.	15.
2002	0.	0.	104737.	0.	0.	276.	0.	0.	238.	0.	0.	4795.	0.	0.	15.

YEAR	GROUP 6(2, 2, 1, 3)			GROUP 7(2, 2, 1, 4)			GROUP 8(2, 2, 2, 3)			GROUP 9(2, 2, 7, 3)			GROUP 10(2, 2, 7, 4)		
	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET
1978	186.	70.	3608.	7.	2.	117.	2.	1.	22.	12.	4.	203.	1.	0.	22.
1979	192.	73.	3727.	4.	2.	119.	1.	0.	23.	15.	4.	214.	1.	0.	23.
1980	248.	74.	3901.	8.	3.	124.	2.	1.	24.	16.	4.	226.	2.	0.	25.
1981	304.	77.	4128.	9.	2.	131.	2.	0.	26.	18.	4.	240.	2.	1.	26.
1982	216.	85.	4259.	8.	3.	136.	1.	0.	27.	16.	5.	251.	1.	0.	27.
1983	148.	84.	4323.	4.	2.	138.	1.	1.	27.	13.	5.	259.	2.	0.	29.
1984	194.	89.	4428.	5.	3.	140.	1.	0.	28.	12.	5.	266.	1.	1.	29.
1985	216.	88.	4556.	8.	3.	145.	2.	1.	29.	17.	6.	277.	2.	0.	31.
1986	231.	91.	4696.	5.	3.	147.	1.	0.	30.	16.	5.	288.	1.	0.	32.
1987	237.	93.	4840.	8.	3.	152.	1.	1.	30.	17.	6.	299.	1.	0.	33.
1988	391.	100.	5131.	0.	5.	147.	3.	0.	33.	24.	6.	317.	1.	1.	33.
1989	328.	102.	5357.	10.	3.	154.	3.	2.	34.	23.	6.	334.	3.	1.	35.
1990	352.	106.	5603.	10.	3.	161.	2.	0.	36.	26.	7.	353.	3.	1.	37.
1991	373.	113.	5863.	10.	3.	168.	2.	1.	37.	27.	7.	373.	3.	1.	39.
1992	386.	115.	6134.	11.	3.	176.	4.	2.	39.	28.	8.	393.	4.	1.	42.
1993	404.	122.	6416.	12.	4.	184.	2.	0.	41.	30.	8.	415.	4.	1.	45.
1994	425.	128.	6713.	12.	4.	192.	2.	1.	42.	31.	8.	438.	3.	1.	47.
1995	444.	135.	7022.	13.	4.	201.	4.	1.	45.	32.	8.	462.	4.	1.	50.
1996	468.	141.	7349.	13.	4.	210.	3.	1.	47.	36.	10.	488.	4.	1.	53.
1997	477.	144.	7682.	12.	4.	218.	3.	0.	50.	35.	9.	514.	4.	1.	56.
1998	516.	155.	8043.	16.	4.	230.	5.	2.	53.	40.	11.	543.	5.	1.	60.
1999	532.	162.	8413.	15.	5.	240.	3.	1.	55.	40.	10.	573.	6.	2.	64.
2000	532.	162.	8783.	15.	5.	250.	3.	1.	57.	40.	10.	603.	6.	2.	68.
2001	0.	0.	8783.	0.	0.	250.	0.	0.	57.	0.	0.	603.	0.	0.	68.
2002	0.	0.	8783.	0.	0.	250.	0.	0.	57.	0.	0.	603.	0.	0.	68.

Table A.7 (Continued)

YEAR	GROUP 11(2, 2, 8, 4)			GROUP 12(2, 3, 1, 3)			GROUP 13(2, 3, 1, 4)			GROUP 14(2, 3, 2, 3)			GROUP 15(2, 3, 3, 4)		
	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET
1978	1.	1.	9.	1177.	465.	23891.	12.	4.	170.	2.	1.	42.	0.	0.	7.
1979	1.	0.	10.	1231.	476.	24646.	7.	4.	173.	3.	1.	44.	0.	0.	7.
1980	1.	1.	10.	1572.	493.	25725.	9.	2.	180.	3.	1.	46.	1.	0.	8.
1981	1.	0.	11.	1965.	518.	27172.	14.	4.	190.	5.	1.	50.	0.	0.	8.
1982	1.	0.	12.	1335.	541.	27966.	12.	4.	198.	3.	1.	52.	2.	1.	9.
1983	1.	1.	12.	920.	561.	28325.	8.	5.	201.	1.	0.	53.	0.	0.	9.
1984	1.	0.	13.	1205.	567.	28963.	6.	3.	204.	2.	1.	54.	0.	0.	9.
1985	1.	1.	13.	1346.	577.	29732.	12.	4.	212.	3.	1.	56.	1.	0.	10.
1986	1.	1.	13.	1423.	596.	30559.	6.	4.	214.	2.	1.	57.	0.	0.	10.
1987	1.	0.	14.	1480.	611.	31428.	11.	4.	221.	4.	2.	59.	0.	0.	10.
1988	0.	0.	14.	2136.	630.	32934.	0.	7.	214.	5.	1.	63.	1.	1.	10.
1989	1.	0.	15.	2022.	659.	34297.	14.	4.	224.	5.	2.	66.	2.	0.	12.
1990	1.	0.	16.	2182.	683.	35796.	15.	5.	234.	4.	1.	69.	1.	0.	13.
1991	1.	0.	17.	2291.	721.	37366.	15.	4.	245.	4.	1.	72.	0.	0.	13.
1992	2.	1.	18.	2382.	744.	39004.	16.	5.	256.	7.	2.	77.	2.	1.	14.
1993	1.	0.	19.	2477.	780.	40701.	17.	6.	267.	4.	1.	80.	1.	0.	15.
1994	1.	0.	20.	2607.	818.	42490.	16.	4.	279.	6.	2.	84.	1.	0.	16.
1995	2.	0.	22.	2722.	850.	44362.	19.	6.	292.	6.	1.	89.	1.	0.	17.
1996	2.	1.	23.	2858.	890.	46330.	20.	6.	306.	6.	2.	93.	2.	1.	18.
1997	1.	0.	24.	2933.	920.	48337.	19.	7.	318.	6.	1.	98.	0.	0.	18.
1998	2.	1.	25.	3138.	965.	50510.	23.	6.	335.	8.	3.	103.	2.	0.	20.
1999	2.	0.	27.	3242.	1012.	52740.	21.	6.	350.	7.	2.	108.	2.	1.	21.
2000	2.	0.	29.	3242.	1012.	54970.	21.	6.	365.	7.	2.	113.	2.	1.	22.
2001	0.	0.	29.	0.	0.	54970.	0.	0.	365.	0.	0.	113.	0.	0.	22.
2002	0.	0.	29.	0.	0.	54970.	0.	0.	365.	0.	0.	113.	0.	0.	22.

YEAR	GROUP 16(2, 3, 6, 4)			GROUP 17(2, 3, 7, 3)			GROUP 18(2, 3, 8, 3)			GROUP 19(2, 4, 1, 3)			GROUP 20(2, 4, 1, 4)		
	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET
1978	2.	1.	16.	34.	11.	587.	0.	0.	12.	1098.	431.	22144.	12.	2.	195.
1979	0.	0.	16.	46.	12.	621.	1.	0.	13.	1145.	442.	22847.	8.	5.	198.
1980	1.	0.	17.	44.	12.	653.	1.	1.	13.	1465.	454.	23858.	12.	3.	207.
1981	2.	1.	18.	57.	13.	697.	3.	0.	16.	1826.	477.	25207.	16.	5.	218.
1982	1.	0.	19.	46.	14.	729.	1.	0.	17.	1249.	502.	25954.	12.	4.	226.
1983	1.	0.	20.	35.	15.	749.	0.	0.	17.	859.	519.	26294.	10.	4.	232.
1984	2.	1.	21.	36.	14.	771.	1.	1.	17.	1124.	525.	26693.	7.	4.	235.
1985	1.	0.	22.	47.	16.	802.	1.	0.	18.	1261.	535.	27619.	13.	6.	242.
1986	1.	1.	22.	48.	18.	832.	1.	0.	19.	1335.	556.	28398.	8.	4.	246.
1987	1.	0.	23.	47.	16.	863.	0.	0.	19.	1382.	562.	29218.	13.	6.	253.
1988	1.	0.	24.	70.	16.	917.	2.	1.	20.	2014.	584.	30648.	0.	7.	246.
1989	2.	1.	25.	68.	18.	967.	1.	0.	21.	1895.	613.	31930.	15.	5.	256.
1990	2.	0.	27.	73.	20.	1020.	1.	0.	22.	2045.	638.	33337.	17.	5.	268.
1991	2.	1.	28.	78.	20.	1078.	2.	1.	23.	2138.	667.	34808.	17.	4.	281.
1992	2.	0.	30.	82.	23.	1137.	3.	1.	25.	2239.	699.	36348.	17.	5.	293.
1993	3.	1.	32.	85.	23.	1199.	1.	0.	26.	2318.	723.	37943.	20.	7.	306.
1994	3.	1.	34.	90.	23.	1266.	3.	1.	28.	2441.	761.	39623.	19.	5.	320.
1995	2.	0.	36.	96.	26.	1336.	1.	0.	29.	2544.	793.	41374.	22.	7.	335.
1996	3.	1.	38.	102.	27.	1411.	2.	1.	30.	2673.	827.	43220.	23.	8.	350.
1997	3.	1.	40.	103.	28.	1486.	2.	0.	32.	2746.	862.	45104.	23.	8.	365.
1998	3.	1.	42.	113.	29.	1570.	4.	1.	35.	2944.	900.	47148.	26.	8.	383.
1999	4.	1.	45.	118.	32.	1656.	2.	0.	37.	3041.	942.	49247.	26.	8.	401.
2000	4.	1.	48.	118.	32.	1742.	2.	0.	39.	3041.	942.	51346.	26.	8.	419.
2001	0.	0.	48.	0.	0.	1742.	0.	0.	39.	0.	0.	51346.	0.	0.	419.
2002	0.	0.	48.	0.	0.	1742.	0.	0.	39.	0.	0.	51346.	0.	0.	419.

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Table A.7 (Continued)

YEAR	GROUP 21(2, 4, 2, 3) NEW	RET	NET	GROUP 22(2, 4, 3, 4) NEW	RET	NET	GROUP 23(2, 4, 7, 3) NEW	RET	NET	GROUP 24(3, 2, 1, 3) NEW	RET	NET	GROUP 25(3, 3, 1, 2) NEW	RET	NET
1978	2.	1.	50.	0.	0.	4.	39.	14.	649.	11.	4.	174.	3.	0.	35.
1979	3.	0.	53.	1.	0.	5.	51.	11.	689.	9.	3.	180.	4.	1.	38.
1980	3.	0.	56.	0.	0.	5.	55.	15.	729.	13.	4.	189.	4.	0.	42.
1981	5.	2.	59.	0.	0.	5.	67.	14.	782.	17.	4.	202.	5.	1.	46.
1982	3.	0.	62.	0.	0.	5.	56.	17.	821.	12.	4.	210.	6.	1.	51.
1983	2.	0.	64.	1.	0.	6.	42.	15.	848.	7.	4.	213.	3.	0.	54.
1984	3.	1.	66.	0.	0.	6.	45.	17.	876.	13.	5.	221.	4.	1.	57.
1985	3.	1.	68.	0.	0.	6.	58.	17.	917.	12.	5.	228.	6.	1.	62.
1986	5.	1.	72.	1.	1.	6.	58.	18.	957.	14.	5.	237.	8.	1.	69.
1987	3.	0.	75.	1.	0.	7.	63.	20.	1000.	12.	4.	245.	5.	1.	73.
1988	7.	2.	80.	0.	0.	7.	94.	21.	1073.	30.	5.	270.	10.	1.	82.
1989	5.	1.	84.	0.	0.	7.	85.	21.	1137.	20.	7.	283.	8.	1.	89.
1990	7.	2.	89.	0.	0.	7.	89.	22.	1204.	21.	5.	299.	9.	3.	95.
1991	5.	0.	94.	1.	0.	8.	47.	24.	1277.	22.	6.	315.	9.	1.	103.
1992	6.	2.	98.	0.	0.	8.	102.	25.	1354.	22.	6.	331.	10.	3.	110.
1993	8.	2.	104.	2.	1.	9.	106.	25.	1435.	25.	6.	350.	9.	1.	118.
1994	7.	2.	109.	0.	0.	9.	115.	29.	1521.	26.	8.	368.	12.	3.	127.
1995	10.	3.	116.	1.	0.	10.	120.	31.	1610.	26.	7.	387.	10.	3.	134.
1996	7.	1.	122.	1.	0.	11.	128.	32.	1706.	27.	7.	407.	12.	3.	143.
1997	9.	1.	130.	0.	0.	11.	134.	36.	1804.	30.	8.	429.	13.	3.	153.
1998	9.	1.	138.	2.	1.	12.	144.	36.	1912.	30.	8.	451.	14.	4.	163.
1999	9.	3.	144.	1.	0.	13.	149.	37.	2024.	33.	9.	475.	13.	3.	173.
2000	9.	3.	150.	1.	0.	14.	149.	37.	2136.	33.	9.	499.	13.	3.	183.
2001	0.	0.	150.	0.	0.	14.	0.	0.	2136.	0.	0.	499.	0.	0.	183.
2002	0.	0.	150.	0.	0.	14.	0.	0.	2136.	0.	0.	499.	0.	0.	183.

YEAR	GROUP 26(3, 3, 1, 3) NEW	RET	NET	GROUP 27(3, 3, 1, 4) NEW	RET	NET	GROUP 28(3, 3, 2, 3) NEW	RET	NET	GROUP 29(3, 3, 7, 3) NEW	RET	NET	GROUP 30(3, 3, 8, 3) NEW	RET	NET
1978	691.	251.	12920.	2.	0.	36.	0.	0.	12.	13.	6.	178.	0.	0.	5.
1979	731.	259.	13392.	2.	1.	37.	1.	0.	13.	15.	2.	191.	0.	0.	5.
1980	926.	265.	14053.	2.	0.	39.	2.	0.	15.	15.	4.	202.	0.	0.	5.
1981	1147.	284.	14916.	4.	1.	42.	1.	0.	16.	21.	6.	217.	2.	0.	7.
1982	818.	297.	15437.	2.	0.	44.	1.	0.	17.	14.	2.	229.	0.	0.	7.
1983	585.	308.	15714.	2.	2.	44.	1.	1.	17.	13.	5.	237.	0.	0.	7.
1984	743.	313.	16144.	1.	0.	45.	2.	2.	17.	14.	5.	246.	0.	0.	7.
1985	835.	324.	16655.	3.	2.	46.	0.	0.	17.	15.	4.	257.	0.	0.	7.
1986	897.	334.	17218.	0.	0.	46.	3.	2.	18.	18.	5.	270.	0.	0.	7.
1987	923.	341.	17800.	3.	2.	47.	2.	0.	20.	14.	3.	281.	0.	0.	7.
1988	1697.	356.	19141.	0.	1.	46.	3.	2.	21.	35.	7.	309.	2.	0.	9.
1989	1283.	366.	20038.	3.	1.	48.	3.	2.	22.	22.	6.	325.	0.	0.	9.
1990	1380.	401.	21017.	4.	1.	51.	2.	0.	24.	27.	6.	346.	0.	0.	9.
1991	1452.	420.	22049.	2.	0.	53.	1.	0.	25.	29.	7.	368.	0.	0.	9.
1992	1527.	441.	23135.	4.	1.	56.	3.	2.	26.	31.	10.	389.	2.	0.	11.
1993	1595.	465.	24265.	3.	2.	57.	3.	2.	27.	31.	6.	414.	0.	0.	11.
1994	1679.	487.	25457.	3.	0.	60.	3.	1.	29.	31.	7.	438.	2.	0.	13.
1995	1740.	508.	26689.	4.	2.	62.	4.	2.	31.	33.	7.	464.	0.	0.	13.
1996	1837.	533.	27993.	5.	2.	65.	3.	0.	34.	40.	12.	492.	2.	0.	15.
1997	1900.	561.	29332.	3.	1.	67.	3.	2.	35.	38.	9.	521.	1.	0.	16.
1998	2038.	589.	30781.	5.	2.	70.	4.	4.	35.	43.	12.	552.	1.	0.	17.
1999	2111.	614.	32278.	5.	2.	73.	3.	0.	38.	45.	11.	586.	0.	0.	17.
2000	2111.	614.	33775.	5.	2.	76.	3.	0.	41.	45.	11.	620.	0.	0.	17.
2001	0.	0.	33775.	0.	0.	76.	0.	0.	41.	0.	0.	620.	0.	0.	17.
2002	0.	0.	33775.	0.	0.	76.	0.	0.	41.	0.	0.	620.	0.	0.	17.

Table A.7 (Continued)

YEAR	GROUP 31(3, 4, 1, 3) NEW	RET	NET	GROUP 32(3, 4, 1, 4) NEW	RET	NET	GROUP 33(3, 4, 2, 3) NEW	RET	NET	GROUP 34(3, 4, 3, 3) NEW	RET	NET	GROUP 35(3, 4, 3, 4) NEW	RET	NET
1978	508.	188.	9851.	1.	0.	39.	0.	0.	26.	0.	0.	24.	2.	1.	21.
1979	536.	198.	10169.	1.	1.	39.	0.	0.	26.	2.	1.	25.	1.	0.	22.
1980	687.	203.	10671.	3.	1.	41.	4.	1.	29.	1.	0.	26.	2.	1.	23.
1981	843.	213.	11301.	4.	1.	44.	3.	1.	31.	3.	1.	28.	1.	0.	24.
1982	599.	227.	11673.	2.	0.	46.	2.	0.	33.	0.	0.	28.	1.	0.	25.
1983	416.	232.	11857.	1.	1.	46.	1.	0.	34.	2.	1.	29.	2.	1.	26.
1984	540.	240.	12157.	0.	0.	46.	2.	1.	35.	0.	0.	29.	1.	0.	27.
1985	604.	242.	12519.	5.	2.	49.	0.	0.	35.	2.	1.	30.	2.	1.	28.
1986	645.	250.	12914.	1.	0.	50.	4.	1.	38.	2.	1.	31.	1.	0.	29.
1987	667.	257.	13324.	3.	1.	52.	2.	1.	39.	1.	0.	32.	2.	1.	30.
1988	1131.	265.	14190.	0.	1.	51.	3.	0.	42.	2.	1.	33.	1.	0.	31.
1989	920.	287.	14823.	4.	2.	53.	2.	1.	43.	2.	1.	34.	2.	1.	32.
1990	995.	293.	15520.	4.	1.	56.	4.	1.	46.	2.	0.	36.	3.	1.	34.
1991	1039.	309.	16250.	3.	0.	59.	3.	1.	48.	2.	1.	37.	2.	0.	36.
1992	1091.	324.	17017.	4.	1.	62.	3.	0.	51.	3.	1.	39.	3.	1.	38.
1993	1138.	341.	17814.	6.	2.	66.	4.	1.	54.	1.	0.	40.	3.	1.	40.
1994	1197.	355.	18656.	3.	0.	69.	4.	1.	57.	3.	1.	42.	2.	0.	42.
1995	1246.	376.	19526.	4.	1.	72.	3.	1.	59.	3.	1.	44.	4.	1.	45.
1996	1316.	392.	20450.	6.	2.	76.	3.	0.	62.	3.	1.	46.	5.	1.	49.
1997	1348.	407.	21391.	4.	1.	79.	4.	1.	65.	3.	1.	48.	4.	1.	52.
1998	1451.	427.	22415.	4.	0.	83.	6.	2.	69.	3.	1.	50.	4.	1.	55.
1999	1501.	451.	23405.	6.	2.	87.	4.	1.	72.	3.	1.	52.	4.	1.	58.
2000	1501.	451.	24515.	6.	2.	91.	4.	1.	75.	3.	1.	54.	4.	1.	61.
2001	0.	0.	24515.	0.	0.	91.	0.	0.	75.	0.	0.	54.	0.	0.	61.
2002	0.	0.	24515.	0.	0.	91.	0.	0.	75.	0.	0.	54.	0.	0.	61.

YEAR	GROUP 36(3, 4, 7, 3) NEW	RET	NET	GROUP 37(4, 2, 1, 3) NEW	RET	NET	GROUP 38(4, 2, 2, 3) NEW	RET	NET	GROUP 39(4, 2, 3, 3) NEW	RET	NET	GROUP 40(4, 2, 7, 3) NEW	RET	NET
1978	6.	2.	77.	214.	65.	3427.	0.	0.	6.	2.	0.	51.	3.	1.	32.
1979	3.	0.	80.	239.	66.	3600.	0.	0.	6.	5.	2.	54.	1.	0.	33.
1980	7.	2.	85.	302.	73.	3829.	1.	0.	7.	4.	0.	58.	3.	1.	35.
1981	9.	2.	92.	365.	76.	4118.	0.	0.	7.	8.	2.	64.	4.	1.	38.
1982	3.	0.	95.	288.	83.	4323.	1.	0.	8.	5.	1.	68.	1.	0.	39.
1983	5.	2.	98.	216.	85.	4454.	1.	1.	8.	5.	2.	71.	2.	1.	40.
1984	7.	3.	102.	269.	86.	4635.	0.	0.	8.	3.	0.	74.	3.	1.	42.
1985	5.	2.	105.	304.	95.	4844.	1.	0.	9.	7.	2.	79.	2.	1.	43.
1986	7.	2.	110.	331.	96.	5079.	0.	0.	9.	7.	2.	84.	3.	1.	45.
1987	7.	2.	115.	348.	101.	5326.	1.	0.	10.	7.	1.	90.	3.	1.	47.
1988	8.	1.	122.	737.	107.	5956.	1.	0.	11.	9.	2.	97.	3.	0.	50.
1989	7.	2.	127.	461.	119.	6298.	2.	1.	12.	9.	3.	103.	3.	1.	52.
1990	11.	4.	134.	503.	128.	6673.	1.	0.	13.	8.	1.	110.	5.	2.	55.
1991	10.	3.	141.	531.	132.	7072.	1.	0.	14.	9.	3.	116.	4.	1.	58.
1992	10.	3.	148.	562.	143.	7491.	2.	0.	16.	10.	2.	124.	4.	1.	61.
1993	12.	2.	158.	590.	149.	7932.	2.	1.	17.	10.	2.	132.	5.	1.	65.
1994	10.	3.	165.	633.	161.	8404.	1.	0.	18.	11.	3.	140.	4.	1.	68.
1995	14.	5.	174.	639.	167.	8876.	1.	0.	19.	12.	3.	149.	6.	2.	72.
1996	12.	3.	183.	685.	179.	9380.	2.	1.	20.	12.	3.	158.	5.	1.	76.
1997	14.	5.	192.	711.	188.	9903.	1.	0.	21.	13.	3.	168.	6.	2.	80.
1998	13.	3.	204.	763.	196.	10470.	2.	1.	22.	13.	3.	178.	6.	1.	85.
1999	15.	5.	214.	801.	210.	11061.	2.	0.	24.	14.	4.	188.	6.	2.	89.
2000	15.	5.	224.	801.	210.	11652.	2.	0.	26.	14.	4.	198.	6.	2.	93.
2001	0.	0.	224.	0.	0.	11652.	0.	0.	26.	0.	0.	198.	0.	0.	93.
2002	0.	0.	224.	0.	0.	11652.	0.	0.	26.	0.	0.	198.	0.	0.	93.

Table A.7 (Continued)

YEAR	GROUP 41(4, 3, 1, 3) NEW	RET	NET	GROUP 42(4, 3, 1, 4) NEW	RET	NET	GROUP 43(4, 3, 2, 3) NEW	RET	NET	GROUP 44(4, 3, 3, 3) NEW	RET	NET	GROUP 45(4, 3, 6, 4) NEW	RET	NET
1978	633.	183.	9692.	6.	2.	79.	1.	0.	15.	4.	1.	78.	2.	1.	16.
1979	729.	193.	10228.	3.	2.	80.	2.	0.	17.	6.	2.	84.	0.	0.	16.
1980	917.	203.	10942.	4.	1.	83.	1.	0.	18.	8.	1.	91.	1.	0.	17.
1981	1117.	219.	11840.	7.	2.	88.	3.	1.	20.	13.	3.	101.	2.	1.	18.
1982	862.	236.	12486.	6.	2.	92.	1.	0.	21.	7.	1.	107.	1.	0.	19.
1983	685.	248.	12923.	3.	2.	93.	2.	0.	23.	9.	3.	113.	1.	0.	20.
1984	849.	259.	13513.	4.	2.	95.	3.	0.	26.	7.	1.	119.	2.	1.	21.
1985	970.	271.	14212.	5.	1.	99.	4.	1.	29.	12.	3.	128.	1.	0.	22.
1986	1048.	283.	14977.	3.	2.	100.	1.	0.	30.	12.	3.	137.	1.	1.	22.
1987	1113.	297.	15793.	6.	2.	104.	4.	1.	33.	12.	2.	147.	1.	0.	23.
1988	2240.	316.	17717.	0.	4.	100.	6.	1.	38.	17.	4.	160.	1.	0.	24.
1989	1425.	351.	18791.	7.	2.	105.	3.	0.	41.	14.	3.	171.	2.	1.	25.
1990	1554.	377.	19968.	6.	2.	109.	4.	1.	44.	16.	3.	184.	2.	0.	27.
1991	1649.	398.	21219.	7.	2.	114.	3.	0.	47.	16.	4.	196.	2.	1.	28.
1992	1744.	422.	22541.	9.	3.	120.	7.	2.	52.	18.	4.	210.	2.	0.	30.
1993	1846.	448.	23939.	7.	2.	125.	4.	0.	56.	16.	3.	223.	3.	1.	32.
1994	1963.	478.	25424.	10.	3.	132.	6.	1.	61.	21.	5.	239.	3.	1.	34.
1995	1999.	509.	26914.	7.	2.	137.	6.	1.	66.	20.	5.	254.	2.	0.	36.
1996	2123.	535.	28502.	10.	3.	144.	6.	2.	70.	21.	5.	270.	3.	1.	38.
1997	2214.	569.	30147.	8.	3.	149.	5.	0.	75.	23.	6.	287.	3.	1.	40.
1998	2366.	599.	31934.	12.	3.	158.	8.	1.	82.	23.	5.	305.	3.	1.	42.
1999	2499.	638.	33795.	10.	3.	165.	7.	2.	87.	26.	7.	324.	4.	1.	45.
2000	2499.	638.	35656.	10.	3.	172.	7.	2.	92.	26.	7.	343.	4.	1.	48.
2001	0.	0.	35656.	0.	0.	172.	0.	0.	92.	0.	0.	343.	0.	0.	48.
2002	0.	0.	35656.	0.	0.	172.	0.	0.	92.	0.	0.	343.	0.	0.	48.

YEAR	GROUP 46(4, 3, 7, 3) NEW	RET	NET	GROUP 47(4, 4, 1, 3) NEW	RET	NET	GROUP 48(4, 4, 3, 3) NEW	RET	NET	GROUP 49(4, 4, 7, 3) NEW	RET	NET	GROUP 50(5, 2, 1, 3) NEW	RET	NET
1978	7.	2.	93.	74.	21.	1073.	2.	1.	31.	3.	1.	34.	4.	2.	73.
1979	10.	2.	101.	93.	21.	1145.	2.	0.	33.	4.	0.	38.	4.	1.	76.
1980	12.	2.	111.	118.	22.	1241.	3.	1.	35.	6.	1.	43.	6.	2.	80.
1981	14.	2.	123.	148.	28.	1361.	3.	1.	37.	7.	1.	49.	6.	1.	85.
1982	12.	3.	132.	118.	25.	1454.	2.	0.	39.	6.	1.	54.	4.	1.	88.
1983	10.	2.	140.	97.	30.	1521.	2.	1.	40.	5.	1.	58.	4.	2.	90.
1984	11.	2.	149.	114.	27.	1608.	3.	1.	42.	6.	1.	63.	4.	1.	93.
1985	10.	4.	161.	139.	33.	1714.	2.	1.	43.	9.	2.	70.	4.	2.	95.
1986	13.	2.	172.	146.	33.	1827.	3.	1.	45.	7.	1.	76.	5.	2.	98.
1987	17.	3.	186.	161.	35.	1953.	2.	0.	47.	10.	2.	84.	5.	1.	102.
1988	30.	4.	212.	269.	42.	2180.	8.	1.	54.	11.	1.	94.	10.	2.	110.
1989	20.	3.	229.	191.	42.	2329.	4.	1.	57.	11.	2.	103.	6.	2.	114.
1990	23.	5.	247.	207.	49.	2487.	5.	2.	60.	11.	2.	112.	8.	3.	119.
1991	25.	6.	266.	219.	49.	2657.	5.	1.	64.	12.	3.	121.	8.	2.	125.
1992	26.	4.	288.	233.	51.	2839.	4.	1.	67.	13.	2.	132.	8.	2.	131.
1993	26.	6.	308.	244.	56.	3027.	5.	1.	71.	13.	3.	142.	8.	2.	137.
1994	31.	6.	333.	267.	61.	3233.	6.	2.	75.	15.	3.	154.	10.	4.	143.
1995	31.	7.	357.	266.	65.	3434.	6.	1.	80.	15.	3.	166.	9.	2.	150.
1996	33.	6.	384.	282.	67.	3649.	6.	2.	84.	16.	3.	179.	11.	4.	157.
1997	36.	9.	411.	302.	74.	3877.	7.	2.	89.	18.	4.	193.	11.	4.	164.
1998	38.	8.	441.	317.	74.	4120.	6.	1.	94.	19.	4.	208.	11.	3.	172.
1999	41.	8.	474.	339.	85.	4374.	7.	2.	99.	20.	4.	224.	11.	4.	179.
[illegible]	41.	8.	507.	339.	85.	4628.	7.	2.	104.	20.	4.	240.	11.	4.	186.

Table A.7 (Continued)

YEAR	GROUP 51(5, 2, 1, 4) NEW	RET	NET	GROUP 52(5, 3, 1, 2) NEW	RET	NET	GROUP 53(5, 3, 1, 3) NEW	RET	NET	GROUP 54(5, 3, 1, 4) NEW	RET	NET	GROUP 55(5, 3, 2, 3) NEW	RET	NET
1978	1.	0.	23.	1.	0.	19.	186.	69.	3587.	2.	1.	29.	0.	0.	4.
1979	2.	1.	24.	2.	1.	20.	197.	74.	3710.	1.	1.	29.	0.	0.	4.
1980	1.	0.	25.	2.	0.	22.	247.	73.	3884.	2.	1.	30.	0.	0.	4.
1981	2.	1.	26.	3.	1.	24.	310.	79.	4115.	2.	1.	31.	1.	0.	5.
1982	1.	0.	27.	4.	1.	27.	219.	81.	4253.	1.	0.	32.	0.	0.	5.
1983	2.	1.	28.	1.	0.	28.	151.	86.	4318.	2.	1.	33.	0.	0.	5.
1984	0.	0.	28.	2.	1.	29.	198.	86.	4430.	0.	0.	33.	0.	0.	5.
1985	2.	1.	29.	4.	1.	32.	221.	89.	4562.	3.	1.	35.	0.	0.	5.
1986	0.	0.	29.	4.	1.	35.	236.	92.	4706.	1.	0.	36.	0.	0.	5.
1987	2.	1.	30.	3.	1.	37.	245.	95.	4856.	2.	1.	37.	0.	0.	5.
1988	0.	1.	29.	6.	1.	42.	408.	97.	5167.	0.	1.	36.	1.	0.	6.
1989	2.	0.	31.	4.	1.	45.	336.	105.	5398.	3.	1.	38.	1.	1.	6.
1990	2.	1.	32.	5.	1.	49.	361.	108.	5651.	2.	1.	39.	0.	0.	6.
1991	2.	0.	34.	5.	1.	53.	380.	114.	5917.	3.	1.	41.	0.	0.	6.
1992	2.	1.	35.	6.	1.	58.	399.	118.	6198.	2.	1.	42.	1.	0.	7.
1993	3.	1.	37.	5.	1.	62.	414.	124.	6488.	4.	1.	45.	0.	0.	7.
1994	1.	0.	38.	6.	1.	67.	437.	130.	6795.	2.	0.	47.	0.	0.	7.
1995	3.	1.	40.	6.	1.	72.	455.	137.	7113.	4.	1.	50.	1.	0.	8.
1996	3.	1.	42.	6.	1.	77.	477.	142.	7448.	4.	1.	53.	0.	0.	8.
1997	3.	1.	44.	7.	1.	83.	493.	149.	7792.	3.	1.	55.	0.	0.	8.
1998	3.	1.	46.	8.	2.	89.	528.	156.	8164.	4.	1.	58.	3.	1.	10.
1999	3.	1.	48.	7.	1.	95.	547.	164.	8547.	4.	1.	61.	0.	0.	10.
2000	3.	1.	50.	7.	1.	101.	547.	164.	8930.	4.	1.	64.	0.	0.	10.
2001	0.	0.	50.	0.	0.	101.	0.	0.	8930.	0.	0.	64.	0.	0.	10.
2002	0.	0.	50.	0.	0.	101.	0.	0.	8930.	0.	0.	64.	0.	0.	10.

YEAR	GROUP 56(5, 3, 3, 4) NEW	RET	NET	GROUP 57(5, 3, 7, 3) NEW	RET	NET	GROUP 58(5, 4, 1, 3) NEW	RET	NET	GROUP 59(5, 4, 1, 4) NEW	RET	NET	GROUP 60(5, 4, 2, 3) NEW	RET	NET
1978	0.	0.	6.	1.	1.	21.	246.	95.	4949.	1.	0.	16.	1.	0.	18.
1979	1.	0.	7.	1.	0.	22.	259.	100.	5108.	1.	1.	16.	1.	0.	19.
1980	0.	0.	7.	2.	1.	23.	331.	102.	5337.	1.	0.	17.	1.	1.	19.
1981	0.	0.	7.	2.	1.	24.	411.	106.	5642.	2.	1.	18.	2.	0.	21.
1982	1.	0.	8.	1.	0.	25.	285.	113.	5814.	1.	0.	19.	1.	1.	21.
1983	1.	1.	8.	1.	1.	25.	193.	116.	5891.	1.	1.	19.	0.	0.	21.
1984	0.	0.	8.	1.	1.	25.	257.	119.	6029.	0.	0.	19.	1.	1.	21.
1985	1.	0.	9.	1.	1.	25.	286.	120.	6195.	1.	1.	19.	1.	0.	22.
1986	0.	0.	9.	2.	1.	26.	301.	123.	6373.	1.	0.	20.	1.	1.	22.
1987	0.	0.	9.	1.	0.	27.	316.	128.	6561.	1.	1.	20.	1.	1.	22.
1988	1.	0.	10.	3.	1.	29.	470.	130.	6901.	0.	1.	19.	1.	0.	23.
1989	1.	1.	10.	2.	1.	30.	432.	139.	7194.	1.	1.	19.	3.	1.	25.
1990	1.	0.	11.	3.	1.	32.	465.	144.	7515.	1.	1.	19.	2.	1.	26.
1991	0.	0.	11.	3.	1.	34.	485.	151.	7849.	1.	0.	20.	1.	0.	27.
1992	1.	0.	12.	4.	1.	37.	509.	156.	8202.	1.	1.	20.	3.	1.	29.
1993	2.	1.	13.	4.	1.	40.	528.	164.	8566.	2.	1.	21.	2.	1.	30.
1994	0.	0.	13.	3.	1.	42.	556.	173.	8949.	1.	0.	22.	2.	1.	31.
1995	1.	0.	14.	4.	1.	45.	579.	178.	9349.	1.	1.	22.	3.	1.	33.
1996	1.	0.	15.	4.	1.	48.	610.	187.	9772.	2.	1.	23.	2.	1.	34.
1997	2.	1.	16.	4.	1.	51.	625.	194.	10203.	2.	1.	24.	2.	0.	36.
1998	1.	0.	17.	4.	1.	54.	672.	205.	10670.	1.	0.	25.	4.	2.	38.
1999	1.	0.	18.	5.	1.	58.	693.	214.	11149.	2.	1.	26.	3.	1.	40.
2000	1.	0.	19.	5.	1.	62.	693.	214.	11628.	2.	1.	27.	3.	1.	42.
2001	0.	0.	19.	0.	0.	62.	0.	0.	11628.	0.	0.	27.	0.	0.	42.
2002	0.	0.	19.	0.	0.	62.	0.	0.	11628.	0.	0.	27.	0.	0.	42.

Table A.7 (Continued)

YEAR	GROUP 61(5, 4, 7, 3) NEW	RET	NET	GROUP 62(6, 2, 1, 3) NEW	RET	NET	GROUP 63(6, 3, 1, 3) NEW	RET	NET	GROUP 64(6, 3, 1, 4) NEW	RET	NET	GROUP 65(6, 3, 2, 3) NEW	RET	NET
1978	1.	0.	31.	3.	1.	48.	12.	3.	183.	0.	0.	3.	0.	0.	1.
1979	3.	1.	33.	3.	1.	50.	14.	4.	193.	0.	0.	3.	0.	0.	1.
1980	2.	1.	34.	4.	1.	53.	17.	4.	206.	0.	0.	3.	0.	0.	1.
1981	4.	1.	37.	5.	1.	57.	22.	4.	224.	0.	0.	3.	0.	0.	1.
1982	2.	1.	38.	4.	1.	60.	17.	5.	236.	0.	0.	3.	0.	0.	1.
1983	2.	1.	39.	3.	1.	62.	13.	5.	244.	0.	0.	3.	0.	0.	1.
1984	2.	1.	40.	4.	1.	65.	17.	5.	256.	0.	0.	3.	0.	0.	1.
1985	3.	1.	42.	5.	1.	69.	19.	5.	270.	0.	0.	3.	0.	0.	1.
1986	2.	1.	43.	5.	1.	73	20.	5.	285.	0.	0.	3.	0.	0.	1.
1987	2.	1.	44.	5.	1.	77.	22.	6.	301.	0.	0.	3.	0.	0.	1.
1988	4.	1.	47.	10.	1.	86.	41.	6.	336.	0.	0.	3.	0.	0.	1.
1989	4.	1.	50.	7.	2.	91.	27.	7.	356.	0.	0.	3.	0.	0.	1.
1990	4.	1.	53.	7.	2.	96.	30.	7.	379.	0.	0.	3.	0.	0.	1.
1991	4.	1.	56.	7.	2.	101.	31.	7.	403.	0.	0.	3.	0.	0.	1.
1992	5.	1.	60.	8.	2.	107.	33.	8.	428.	0.	0.	3.	0.	0.	1.
1993	4.	1.	63.	8.	2.	113.	35.	9.	454.	0.	0.	3.	0.	0.	1.
1994	5.	1.	67.	9.	2.	120.	38.	9.	483.	0.	0.	3.	0.	0.	1.
1995	5.	1.	71.	9.	2.	127.	38.	10.	511.	0.	0.	3.	0.	0.	1.
1996	6.	1.	76.	10.	2.	135.	40.	10.	541.	0.	0.	3.	0.	0.	1.
1997	5.	1.	80.	10.	3.	142.	42.	11.	572.	0.	0.	3.	0.	0.	1.
1998	6.	1.	85.	11.	3.	150.	46.	12.	606.	0.	0.	3.	0.	0.	1.
1999	6.	2.	89.	11.	3.	158.	48.	12.	642.	0.	0.	3.	0.	0.	1.
2000	6.	2.	93.	11.	3.	166.	48.	12.	678.	0.	0.	3.	0.	0.	1.
2001	0.	0.	93.	0.	0.	166.	0.	0.	678.	0.	0.	3.	0.	0.	1.
2002	0.	0.	93.	0.	0.	166.	0.	0.	678.	0.	0.	3.	0.	0.	1.

YEAR	GROUP 66(6, 3, 7, 3) NEW	RET	NET	GROUP 67(6, 4, 1, 3) NEW	RET	NET	GROUP 68(6, 4, 7, 3) NEW	RET	NET	GROUP 69(7, 1, 1, 1) NEW	RET	NET	GROUP 70(7, 1, 1, 2) NEW	RET	NET
1978	0.	0.	2.	2.	0.	25.	0.	0.	1.	54.	22.	1063.	56.	0.	621.
1979	0.	0.	2.	2.	0.	27.	0.	0.	1.	56.	25.	1094.	52.	0.	673.
1980	0.	0.	2.	3.	0.	30.	0.	0.	1.	35.	17.	1112.	65.	0.	738.
1981	0.	0.	2.	3.	1.	32.	0.	0.	1.	38.	29.	1121.	72.	0.	810.
1982	0.	0.	2.	3.	1.	34.	0.	0.	1.	89.	51.	1159.	56.	2.	864.
1983	0.	0.	2.	2.	1.	35.	0.	0.	1.	113.	73.	1199.	57.	16.	905.
1984	0.	0.	2.	3.	1.	37.	0.	0.	1.	138.	88.	1249.	94.	50.	949.
1985	0.	0.	2.	3.	1.	39.	0.	0.	1.	150.	105.	1294.	150.	102.	997.
1986	0.	0.	2.	3.	1.	41.	0.	0.	1.	146.	111.	1329.	200.	148.	1049.
1987	0.	0.	2.	4.	1.	44.	0.	0.	1.	126.	90.	1365.	184.	115.	1118.
1988	1.	0.	3.	6.	1.	49.	1.	0.	2.	81.	55.	1391.	87.	42.	1163.
1989	0.	0.	3.	4.	1.	52.	0.	0.	2.	62.	39.	1414.	49.	8.	1204.
1990	0.	0.	3.	5.	1.	56.	0.	0.	2.	79.	49.	1444.	39.	4.	1239.
1991	1.	0.	4.	5.	1.	60.	1.	0.	3.	108.	66.	1486.	12.	7.	1244.
1992	1.	0.	5.	5.	1.	64.	1.	0.	4.	96.	59.	1523.	18.	7.	1255.
1993	1.	0.	6.	6.	1.	69.	1.	0.	5.	78.	46.	1555.	28.	12.	1271.
1994	1.	0.	7.	6.	1.	74.	1.	0.	6.	79.	45.	1589.	37.	24.	1284.
1995	1.	0.	8.	6.	1.	79.	1.	0.	7.	84.	53.	1620.	51.	37.	1298.
1996	1.	0.	9.	6.	2.	83.	1.	0.	8.	82.	55.	1647.	69.	52.	1315.
1997	1.	0.	10.	7.	2.	88.	1.	0.	9.	78.	48.	1677.	77.	59.	1333.
1998	1.	0.	11.	7.	2.	93.	1.	0.	10.	72.	41.	1708.	83.	65.	1351.
1999	1.	0.	12.	8.	2.	99.	1.	0.	11.	80.	50.	1738.	86.	68.	1369.
2000	1.	0.	13.	8.	2.	105.	1.	0.	12.	80.	50.	1768.	86.	68.	1387.
2001	0.	0.	13.	0.	0.	105.	0.	0.	12.	0.	0.	1768.	0.	0.	1387.
							0.	0.	12.	0.	0.	1768.	0.	0.	1387.

Table A.7 (Continued)

YEAR	GROUP 71(7, 1, 1, 3) NEW	RET	NET	GROUP 72(7, 1, 2, 1) NEW	RET	NET	GROUP 73(7, 1, 4, 1) NEW	RET	NET	GROUP 74(7, 1, 5, 1) NEW	RET	NET	GROUP 75(7, 1, 7, 1) NEW	RET	NET
1978	0.	23.	275.	11.	2.	177.	11.	11.	248.	5.	2.	67.	1.	0.	10.
1979	0.	19.	256.	10.	2.	185.	11.	12.	247.	4.	2.	69.	0.	0.	10.
1980	0.	13.	243.	7.	2.	190.	10.	10.	247.	2.	1.	70.	1.	0.	11.
1981	0.	12.	231.	7.	4.	193.	8.	8.	247.	3.	2.	71.	1.	1.	11.
1982	0.	18.	213.	14.	9.	203.	12.	12.	247.	5.	3.	73.	1.	0.	12.
1983	0.	11.	202.	24.	13.	214.	16.	18.	245.	7.	4.	76.	1.	1.	12.
1984	0.	10.	192.	28.	15.	227.	22.	21.	246.	10.	6.	80.	2.	1.	13.
1985	0.	10.	182.	26.	16.	239.	29.	31.	244.	10.	8.	82.	1.	1.	13.
1986	0.	10.	172.	28.	17.	250.	31.	33.	242.	10.	7.	85.	2.	1.	14.
1987	0.	8.	164.	24.	13.	261.	26.	30.	238.	9.	7.	87.	1.	0.	15.
1988	0.	18.	146.	13.	7.	267.	28.	24.	242.	6.	4.	89.	0.	0.	15.
1989	0.	12.	134.	11.	6.	272.	18.	12.	248.	5.	3.	91.	1.	1.	15.
1990	0.	14.	120.	16.	10.	278.	11.	6.	253.	6.	4.	93.	1.	0.	16.
1991	0.	12.	108.	22.	14.	286.	16.	6.	263.	8.	4.	97.	1.	1.	16.
1992	0.	12.	96.	21.	13.	294.	14.	5.	272.	7.	5.	99.	2.	1.	17.
1993	0.	5.	91.	17.	10.	301.	12.	5.	279.	6.	3.	102.	0.	0.	17.
1994	0.	4.	87.	15.	10.	306.	14.	5.	288.	5.	4.	103.	1.	1.	17.
1995	0.	5.	82.	17.	11.	312.	20.	7.	301.	6.	3.	106.	1.	0.	18.
1996	0.	4.	78.	15.	11.	316.	19.	9.	311.	5.	3.	108.	1.	1.	18.
1997	0.	5.	73.	15.	9.	322.	21.	11.	321.	6.	3.	111.	1.	1.	18.
1998	0.	4.	69.	13.	8.	327.	20.	11.	330.	5.	3.	113.	1.	0.	19.
1999	0.	4.	65.	10.	10.	333.	20.	10.	340.	6.	4.	115.	0.	0.	19.
2000	0.	4.	61.	10.	10.	339.	20.	10.	350.	6.	4.	117.	0.	0.	19.
2001	0.	0.	61.	0.	0.	339.	0.	0.	350.	0.	0.	117.	0.	0.	19.
2002	0.	0.	61.	0.	0.	339.	0.	0.	350.	0.	0.	117.	0.	0.	19.

YEAR	GROUP 76(7, 1, 7, 2) NEW	RET	NET	GROUP 77(7, 1, 7, 3) NEW	PET	NET	GROUP 78(7, 2, 1, 2) NEW	RET	NET	GROUP 79(7, 3, 1, 1) NEW	RET	NET	GROUP 80(7, 3, 1, 2) NEW	RET	NET
1978	6.	0.	18.	0.	4.	40.	7.	1.	71.	6.	0.	77.	156.	27.	1492.
1979	4.	0.	22.	0.	2.	38.	8.	2.	77.	8.	3.	82.	155.	29.	1618.
1980	6.	0.	28.	0.	4.	34.	7.	1.	83.	8.	0.	90.	161.	32.	1747.
1981	7.	0.	35.	0.	4.	30.	11.	3.	91.	11.	3.	98.	229.	37.	1939.
1982	6.	0.	41.	0.	3.	27.	12.	2.	101.	14.	3.	109.	235.	38.	2136.
1983	3.	0.	44.	0.	1.	26.	7.	1.	107.	6.	0.	115.	170.	41.	2265.
1984	6.	1.	49.	0.	2.	24.	9.	3.	113.	8.	3.	120.	177.	47.	2395.
1985	4.	1.	52.	0.	1.	23.	12.	3.	122.	14.	3.	131.	245.	49.	2591.
1986	7.	1.	58.	0.	1.	22.	15.	3.	135.	17.	3.	145.	313.	50.	2854.
1987	5.	1.	62.	0.	1.	21.	11.	3.	143.	11.	3.	153.	253.	57.	3050.
1988	6.	1.	67.	0.	2.	19.	20.	3.	160.	23.	3.	173.	437.	62.	3425.
1989	5.	0.	72.	0.	3.	16.	16.	3.	173.	17.	3.	187.	329.	67.	3687.
1990	5.	1.	76.	0.	1.	15.	18.	4.	187.	20.	6.	201.	363.	75.	3975.
1991	3.	0.	79.	0.	3.	12.	19.	3.	203.	20.	3.	218.	386.	79.	4282.
1992	5.	1.	83.	0.	3.	9.	20.	4.	219.	23.	6.	235.	414.	86.	4610.
1993	1.	0.	84.	0.	0.	9.	20.	3.	236.	20.	3.	252.	439.	92.	4957.
1994	3.	1.	86.	0.	1.	8.	23.	5.	254.	25.	6.	271.	469.	99.	5327.
1995	5.	4.	87.	0.	0.	8.	22.	5.	271.	23.	6.	288.	470.	107.	5690.
1996	6.	3.	90.	0.	1.	7.	25.	5.	291.	25.	6.	307.	501.	114.	6077.
1997	4.	3.	91.	0.	0.	7.	25.	5.	311.	28.	6.	329.	527.	122.	6482.
1998	7.	4.	94.	0.	1.	6.	28.	7.	332.	31.	8.	352.	572.	131.	6923.
1999	6.	4.	96.	0.	1.	5.	28.	6.	354.	28.	6.	374.	600.	137.	7386.
2000	6.	4.	98.	0.	1.	4.	28.	6.	376.	28.	6.	396.	600.	137.	7849.
2001	0.	0.	98.	0.	0.	4.	0.	0.	376.	0.	0.	396.	0.	0.	7849.
2002	0.	0.	98.	0.	0.	4.	0.	0.	376.	0.	0.	396.	0.	0.	7849.

Table A.7 (Continued)

YEAR	GROUP 81(7, 3, 4, 1)			GROUP 82(7, 3, 4, 2)			GROUP 83(7, 3, 4, 3)			GROUP 84(7, 4, 1, 2)			GROUP 85(7, 4, 4, 1)		
	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET
1978	6.	2.	78.	3.	1.	48.	2.	1.	32.	10.	4.	147.	2.	1.	32.
1979	7.	2.	83.	4.	1.	51.	2.	0.	34.	15.	2.	160.	2.	0.	34.
1980	6.	2.	87.	4.	1.	54.	3.	1.	36.	16.	4.	172.	3.	1.	36.
1981	8.	1.	94.	5.	2.	57.	4.	1.	39.	24.	4.	192.	3.	1.	38.
1982	8.	3.	99.	4.	1.	60.	2.	0.	41.	22.	4.	210.	2.	0.	40.
1983	6.	2.	103.	4.	2.	62.	2.	1.	42.	16.	4.	222.	2.	1.	41.
1984	5.	1.	107.	3.	1.	64.	3.	1.	44.	18.	5.	235.	2.	1.	42.
1985	9.	3.	113.	5.	2.	67.	4.	1.	47.	26.	5.	256.	3.	1.	44.
1986	7.	2.	118.	4.	2.	69.	2.	1.	48.	29.	4.	281.	3.	1.	46.
1987	9.	3.	124.	5.	2.	72.	4.	1.	51.	26.	5.	302.	3.	1.	48.
1988	12.	3.	133.	7.	2.	77.	3.	1.	53.	44.	7.	339.	4.	1.	51.
1989	10.	2.	141.	6.	2.	81.	4.	1.	56.	33.	5.	367.	4.	1.	54.
1990	13.	4.	150.	7.	2.	86.	5.	1.	60.	36.	9.	394.	4.	1.	57.
1991	12.	2.	160.	7.	2.	91.	4.	1.	63.	38.	7.	425.	5.	1.	61.
1992	14.	4.	170.	7.	2.	96.	6.	2.	67.	40.	7.	458.	4.	1.	64.
1993	14.	4.	180.	8.	2.	102.	5.	1.	71.	46.	11.	493.	5.	1.	68.
1994	15.	4.	191.	8.	2.	108.	5.	1.	75.	46.	9.	530.	6.	2.	72.
1995	16.	3.	204.	9.	3.	114.	6.	2.	79.	47.	11.	566.	5.	1.	76.
1996	16.	4.	216.	9.	2.	121.	6.	1.	84.	49.	11.	604.	6.	2.	80.
1997	17.	4.	229.	9.	3.	127.	6.	2.	88.	53.	13.	644.	6.	1.	85.
1998	18.	5.	242.	10.	2.	135.	8.	2.	94.	57.	13.	688.	7.	2.	90.
1999	19.	4.	257.	10.	3.	142.	7.	2.	99.	58.	13.	733.	7.	2.	95.
2000	19.	4.	272.	10.	3.	149.	7.	2.	104.	58.	13.	778.	7.	2.	100.
2001	0.	0.	272.	0.	0.	149.	0.	0.	104.	0.	0.	778.	0.	0.	100.
2002	0.	0.	272.	0.	0.	149.	0.	0.	104.	0.	0.	778.	0.	0.	100.

YEAR	GROUP 86(7, 4, 7, 1)			GROUP 87(8, 1, 4, 1)			GROUP 88(8, 1, 5, 1)			GROUP 89(8, 3, 4, 1)			GROUP 90(8, 3, 4, 2)		
	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET
1978	5.	1.	36.	3.	2.	69.	0.	1.	14.	1.	0.	16.	3.	1.	48.
1979	4.	0.	40.	2.	3.	68.	0.	0.	14.	1.	0.	17.	4.	1.	51.
1980	4.	1.	43.	3.	2.	69.	1.	1.	14.	1.	0.	18.	3.	1.	53.
1981	6.	1.	48.	2.	2.	69.	0.	0.	14.	2.	1.	19.	4.	0.	57.
1982	7.	1.	54.	3.	3.	69.	0.	0.	14.	1.	0.	20.	4.	1.	60.
1983	5.	1.	58.	4.	4.	69.	0.	1.	13.	1.	0.	21.	3.	1.	62.
1984	4.	1.	61.	7.	7.	69.	1.	1.	13.	1.	1.	21.	2.	1.	63.
1985	7.	1.	67.	9.	8.	70.	1.	1.	13.	1.	0.	22.	4.	1.	66.
1986	10.	2.	75.	9.	10.	69.	1.	2.	12.	1.	0.	23.	3.	0.	69.
1987	7.	1.	81.	7.	7.	69.	1.	1.	12.	1.	0.	24.	4.	1.	72.
1988	13.	2.	92.	6.	6.	69.	1.	1.	12.	2.	0.	26.	6.	1.	77.
1989	10.	2.	100.	4.	2.	71.	1.	1.	12.	2.	1.	27.	5.	1.	81.
1990	11.	2.	109.	3.	1.	73.	1.	0.	13.	2.	0.	29.	6.	1.	86.
1991	12.	2.	119.	4.	2.	75.	0.	0.	13.	2.	1.	30.	7.	2.	91.
1992	13.	2.	130.	6.	3.	78.	1.	0.	14.	2.	0.	32.	6.	1.	96.
1993	14.	3.	141.	3.	1.	80.	0.	0.	14.	2.	0.	34.	7.	2.	101.
1994	16.	3.	154.	3.	2.	81.	1.	0.	15.	3.	1.	36.	8.	2.	107.
1995	15.	3.	166.	5.	2.	84.	1.	0.	16.	3.	1.	38.	9.	2.	114.
1996	16.	3.	179.	5.	3.	86.	1.	1.	16.	3.	1.	40.	8.	2.	120.
1997	18.	4.	193.	6.	3.	89.	1.	1.	16.	3.	1.	42.	9.	2.	127.
1998	20.	4.	209.	5.	3.	91.	1.	0.	17.	3.	0.	45.	10.	3.	134.
1999	20.	4.	225.	6.	3.	94.	1.	0.	18.	4.	2.	47.	10.	2.	142.
2000	20.	5.	241.	6.	3.	97.	1.	0.	19.	4.	2.	49.	10.	2.	150.
2001	0.	0.	241.	0.	0.	97.	0.	0.	19.	0.	0.	49.	0.	0.	150.
2002	0.	0.	241.	0.	0.	97.	0.	0.	19.	0.	0.	49.	0.	0.	150.

YEAR	GROUP 91(9, 1, 1, 1) NEW	RET	NET	GROUP 92(9, 1, 4, 1) NEW	RET	NET	GROUP 93(10, 2, 1, 2) NEW	RET	NET	GROUP 94(10, 3, 1, 1) NEW	RET	NET	GROUP 95(10, 3, 1, 2) NEW	RET	NET
1978	1.	2.	37.	2.	3.	59.	1.	0.	10.	0.	0.	4.	18.	3.	173.
1979	1.	2.	36.	2.	3.	56.	1.	0.	11.	1.	0.	5.	18.	4.	187.
1980	2.	2.	36.	2.	2.	58.	1.	0.	12.	1.	0.	6.	18.	3.	202.
1981	1.	1.	36.	2.	2.	58.	2.	0.	14.	1.	0.	7.	27.	4.	225.
1982	1.	2.	35.	1.	3.	56.	1.	0.	15.	1.	0.	8.	27.	5.	247.
1983	2.	3.	34.	3.	4.	55.	1.	0.	16.	0.	0.	8.	20.	5.	262.
1984	2.	3.	33.	4.	6.	53.	1.	0.	17.	1.	0.	9.	20.	5.	277.
1985	4.	5.	32.	6.	7.	52.	2.	0.	19.	1.	0.	10.	28.	5.	300.
1986	4.	6.	30.	6.	8.	50.	2.	0.	21.	1.	0.	11.	36.	6.	330.
1987	3.	4.	29.	6.	9.	47.	2.	0.	23.	1.	0.	12.	29.	7.	352.
1988	4.	4.	29.	7.	6.	48.	3.	0.	26.	1.	0.	13.	50.	7.	395.
1989	2.	1.	30.	5.	4.	49.	2.	0.	28.	1.	0.	14.	38.	8.	425.
1990	1.	1.	30.	2.	1.	50.	2.	1.	29.	1.	0.	15.	42.	9.	458.
1991	2.	0.	32.	3.	0.	53.	2.	1.	30.	1.	0.	16.	45.	9.	494.
1992	1.	1.	32.	2.	0.	55.	3.	1.	32.	1.	0.	17.	48.	10.	532.
1993	1.	0.	33.	2.	1.	56.	3.	1.	34.	1.	0.	18.	51.	10.	573.
1994	2.	0.	35.	3.	0.	59.	3.	1.	36.	2.	0.	20.	55.	11.	617.
1995	2.	1.	36.	5.	2.	62.	3.	1.	38.	1.	0.	21.	54.	12.	659.
1996	2.	0.	38.	4.	2.	64.	3.	1.	40.	2.	0.	23.	58.	13.	704.
1997	3.	2.	39.	5.	2.	67.	3.	1.	42.	2.	0.	25.	61.	14.	751.
1998	3.	2.	40.	5.	2.	70.	4.	1.	45.	2.	1.	26.	66.	15.	802.
999	3.	1.	42.	4.	2.	72.	4.	1.	48.	2.	0.	28.	69.	16.	855.
000	3.	1.	44.	4.	2.	74.	4.	1.	51.	2.	0.	30.	69.	16.	908.
001	0.	0.	44.	0.	0.	74.	0.	0.	51.	0.	0.	30.	0.	0.	908.
002	0.	0.	44.	0.	0.	74.	0.	0.	51.	0.	0.	30.	0.	0.	908.

YEAR	GROUP 96(10, 3, 2, 2) NEW	RET	NET	GROUP 97(10, 4, 1, 1) NEW	RET	NET	GROUP 98(10, 4, 1, 2) NEW	RET	NET
1978	3.	1.	18.	4.	0.	54.	2.	0.	15.
1979	1.	0.	19.	6.	2.	58.	1.	0.	16.
1980	2.	0.	21.	6.	0.	64.	2.	0.	18.
1981	3.	1.	23.	8.	2.	70.	2.	0.	20.
1982	3.	0.	26.	10.	2.	78.	2.	0.	22.
1983	3.	1.	28.	4.	0.	82.	2.	0.	24.
1984	1.	0.	29.	6.	2.	86.	2.	1.	25.
1985	4.	1.	32.	10.	2.	94.	2.	1.	26.
1986	3.	0.	35.	12.	2.	104.	3.	0.	29.
1987	4.	1.	38.	8.	2.	110.	2.	1.	30.
1988	6.	1.	43.	16.	2.	124.	4.	1.	33.
1989	5.	1.	47.	12.	2.	134.	3.	1.	35.
1990	5.	1.	51.	14.	4.	144.	4.	1.	38.
1991	5.	1.	55.	14.	2.	156.	4.	1.	41.
1992	6.	1.	60.	16.	4.	168.	4.	1.	44.
1993	6.	1.	65.	14.	2.	180.	4.	1.	47.
1994	6.	1.	70.	18.	4.	194.	4.	1.	50.
1995	7.	2.	75.	16.	4.	206.	5.	1.	54.
1996	7.	1.	81.	18.	4.	220.	5.	1.	58.
1997	8.	2.	87.	20.	4.	236.	5.	1.	62.
1998	9.	2.	94.	22.	6.	252.	5.	1.	66.
1999	8.	1.	101.	20.	4.	268.	6.	1.	71.
2000	8.	1.	108.	20.	4.	284.	6.	1.	76.
2001	0.	0.	108.	0.	0.	284.	0.	0.	76.
2002	0.	0.	108.	0.	0.	284.	0.	0.	76.

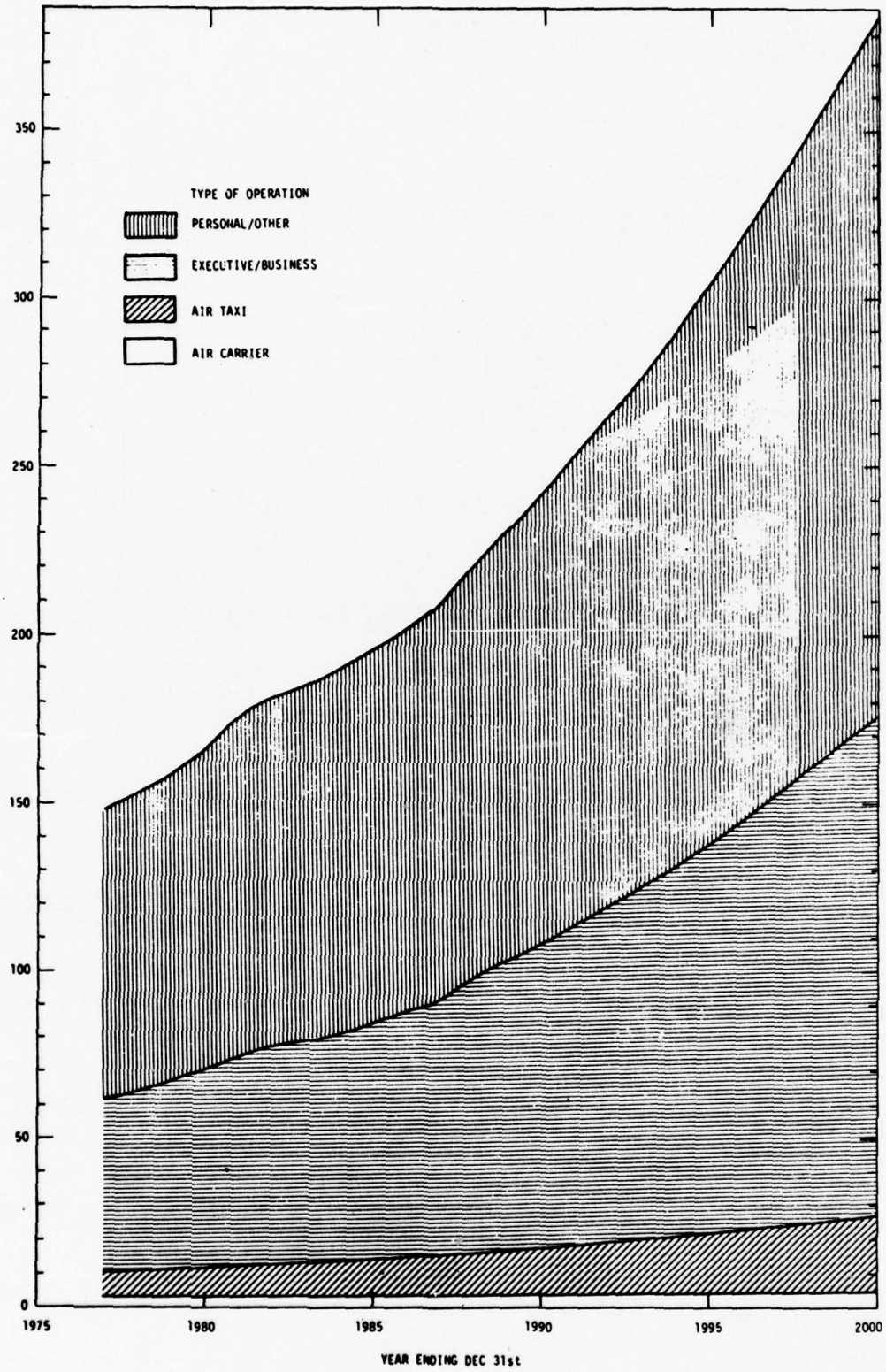


Figure A.3 U.S. Aircraft Fleet Projection by Type of Operation (Including only aircraft equipped with at least a single VOR)

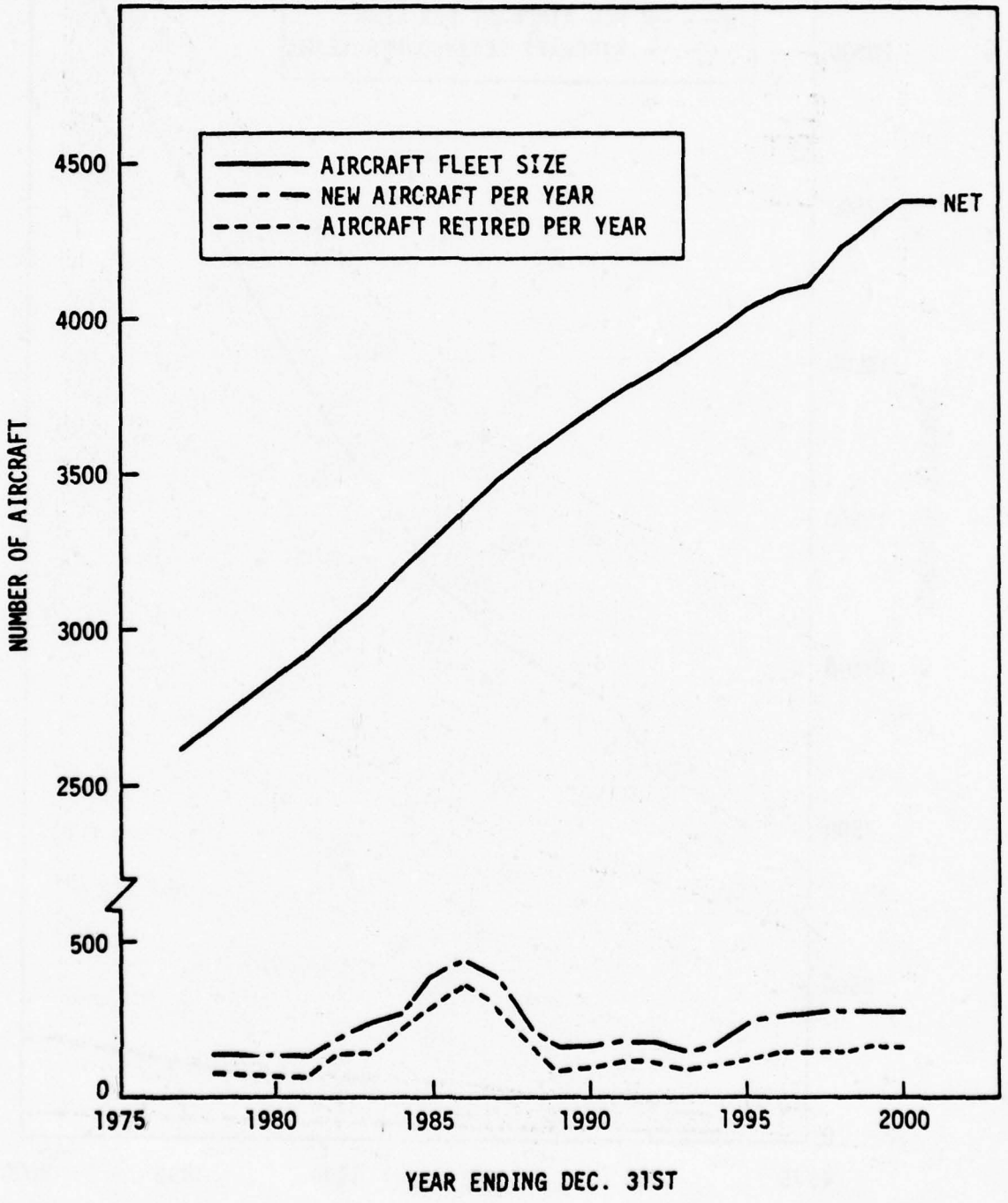


Figure A.4 U.S. Aircraft Fleet Projection - Air Carrier Aircraft

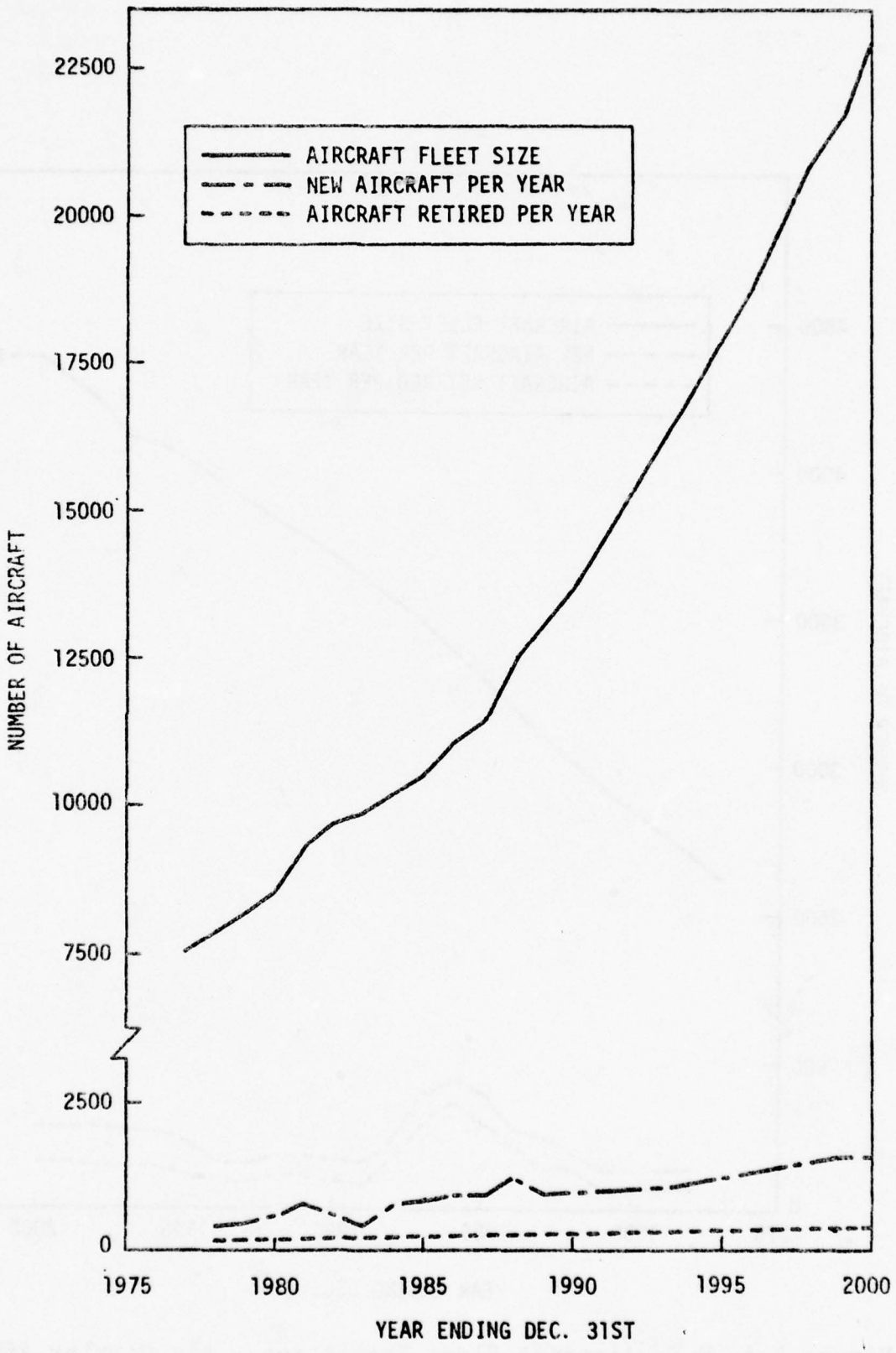


Figure A.5 U.S. Aircraft Fleet Projection - Air Taxi Aircraft (Including only aircraft equipped with at least a single VOR)

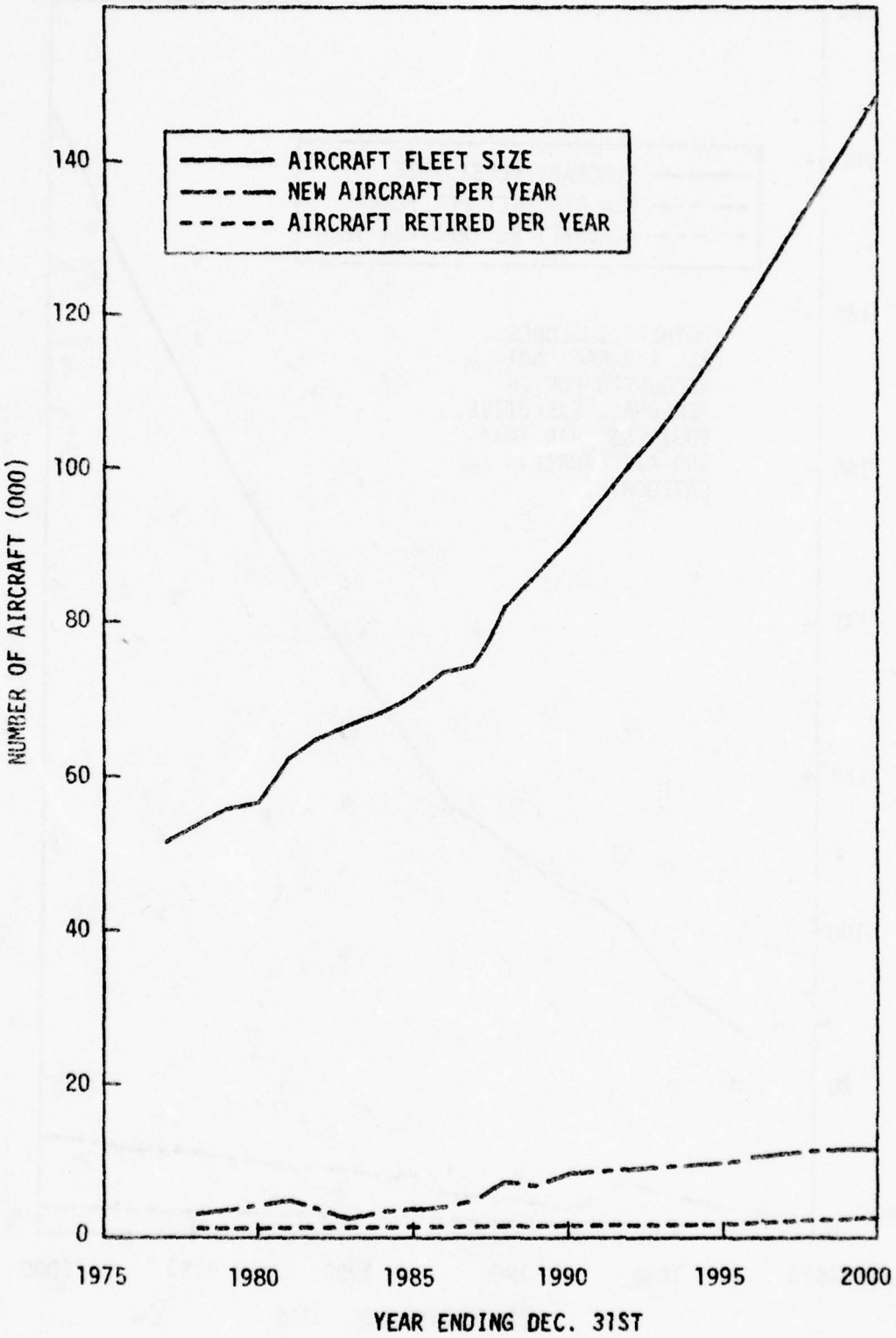


Figure A.6 U.S. Aircraft Fleet Projection - Executive and Business Aircraft
(Including only aircraft equipped with at least a single VOR)

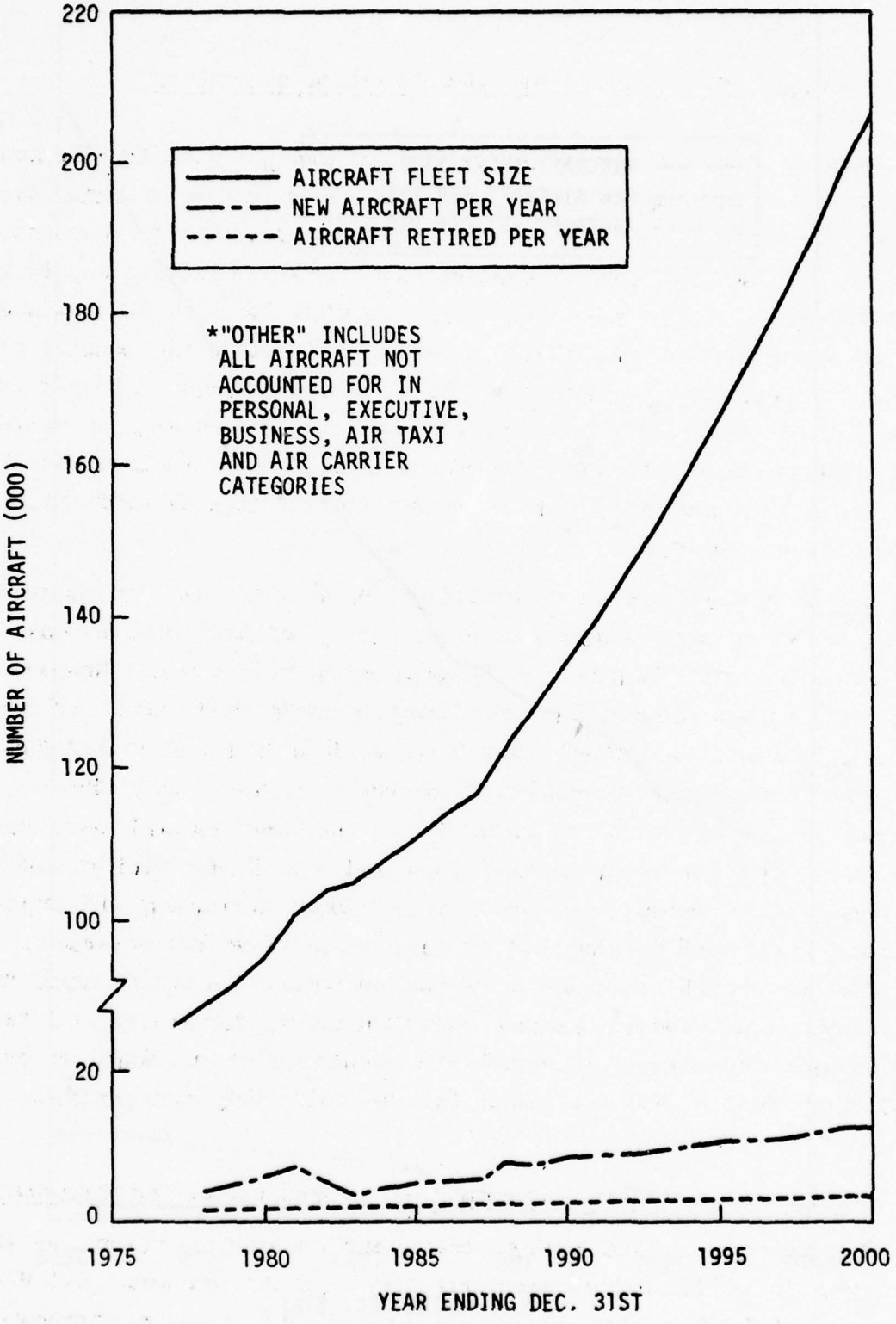


Figure A.7 U.S. Aircraft Fleet Projection - Personal and Other* Aircraft
(Including only aircraft equipped with at least a single VOR)

A.2.3 Navigation Avionics Age and Lifetime Estimates

A major contributor to overall user group costs is the usable lifetime of their navigation avionics. To a lesser degree, the current avionics age distribution is also a major cost factor, since this distribution, in conjunction with the lifetime, dictates the rate at which the existing avionics will have to be replaced. The current avionics distribution also influences the amount of navigation avionics depreciation to be taken during the next seven years (based on seven year straight line depreciation, no residual value). For these reasons, the RAANS methodology incorporated both navigation avionics lifetime and current age distribution parameters as inputs.

The method of approach intially envisioned for the quantification of these inputs consisted primarily of informal discussions with selected individuals knowledgeable in this area. However, the results thus obtained showed considerable difference of opinion. Further, the initial model runs indicated that the results (user costs) were reasonably sensitive to these inputs. For these reasons, a new approach to quantifying the new general aviation enroute navigation avionics lifetime and age distribution was conceived. The resulting approach involved surveying all repair stations certified by the FAA to service navigation avionics. The response was highly satisfactory and provided a direct input to the study. The repair station questionnaire, tabulation of the results and the manner in which the results are utilized in the RAANS methodology are described in the following paragraphs.

Navigation Avionics Lifetime/Age Distribution Questionnaire

The avionics lifetime/age distribution questionnaire is shown in Figure A.8. This questionnaire was sent to the over 400 FAA certificated "radio navigation equipment" (R2) repair stations as identified in Ref.A2.

The information contained herein, will be treated as proprietary and will not be desiminated. Only the aggregated data base obtained from all returned questionnaires will be used and published as part of the study results.

1) What is your estimate of the average lifetime* of general aviation radio navigation avionics?

VOR ☐ YEARS DME ☐ YEARS

2) In your opinion, what are the primary reasons(s) for the replacement of radio navigation avionics within the existing general aviation fleet?

	CHECK ONE FOR EACH REASON		
	MOST IMPORTANT	IMPORTANT	NOT A FACTOR
Inadequate performance/ capability relative to that obtainable in current state of the art units	☐	☐	☐
High maintenance requirements/ costs relative to that anticipated with current state of the art units	☐	☐	☐
Other - please describe _____	☐	☐	☐

_____

_____

3) What is your estimate of the age distribution of radio navigation avionics within the existing general aviation fleet?

AGE	PER CENT OF TOTAL UNITS	
	VOR	DME
Less than 2 years	☐	☐
2 through 5 years	☐	☐
5 through 10 years	☐	☐
10 through 15 years	☐	☐
Greater than 15 years	☐	☐
All ages	100	100

The sum of five divisions should total 100 percent

OPTIONAL QUESTIONS

3) Approximately how many VOR and DME avionics units do you service annually? ☐

4) Approximately how many used VOR and DME avionics units do you sell annually? ☐

5) Approximately how many new VOR and DME avionics units do you sell annually? ☐

*Radio navigation lifetime should be interpreted as the length of time, in years, between the date of new unit purchase and final scrapping of that unit. Intermediate removal and installation in different aircraft, hsould not be considered in the average lifetime estimate.

Figure A.8 Survey Questionnaire of FAA Certificated Repair Stations

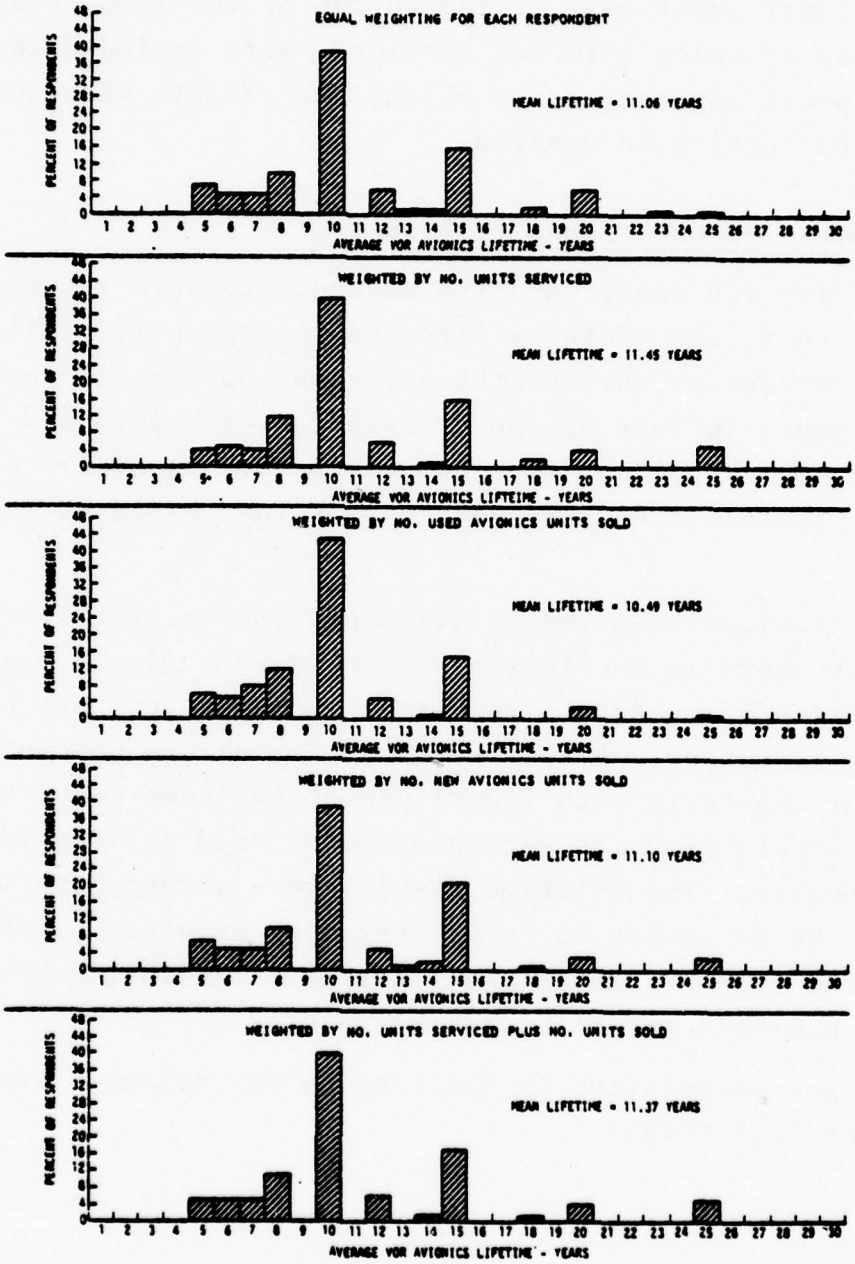
Questions 1 and 3, soliciting lifetime and age distribution information, were intended to provide the primary study inputs. The "optional questions" at the bottom of the form, soliciting the number of units sold and serviced, were included for the purpose of providing factors to weight the results when combined should that option be desired.

Summary of Questionnaire Results

Of over 400 questionnaires mailed, 115 were returned. For the most part, all of those returned were properly filled out. In some cases, one or more of the questions appeared to have been misinterpreted. In some of these instances, the intended "correct" response could be identified and was used. In other cases, this was not possible and these portions of the responses were not processed.

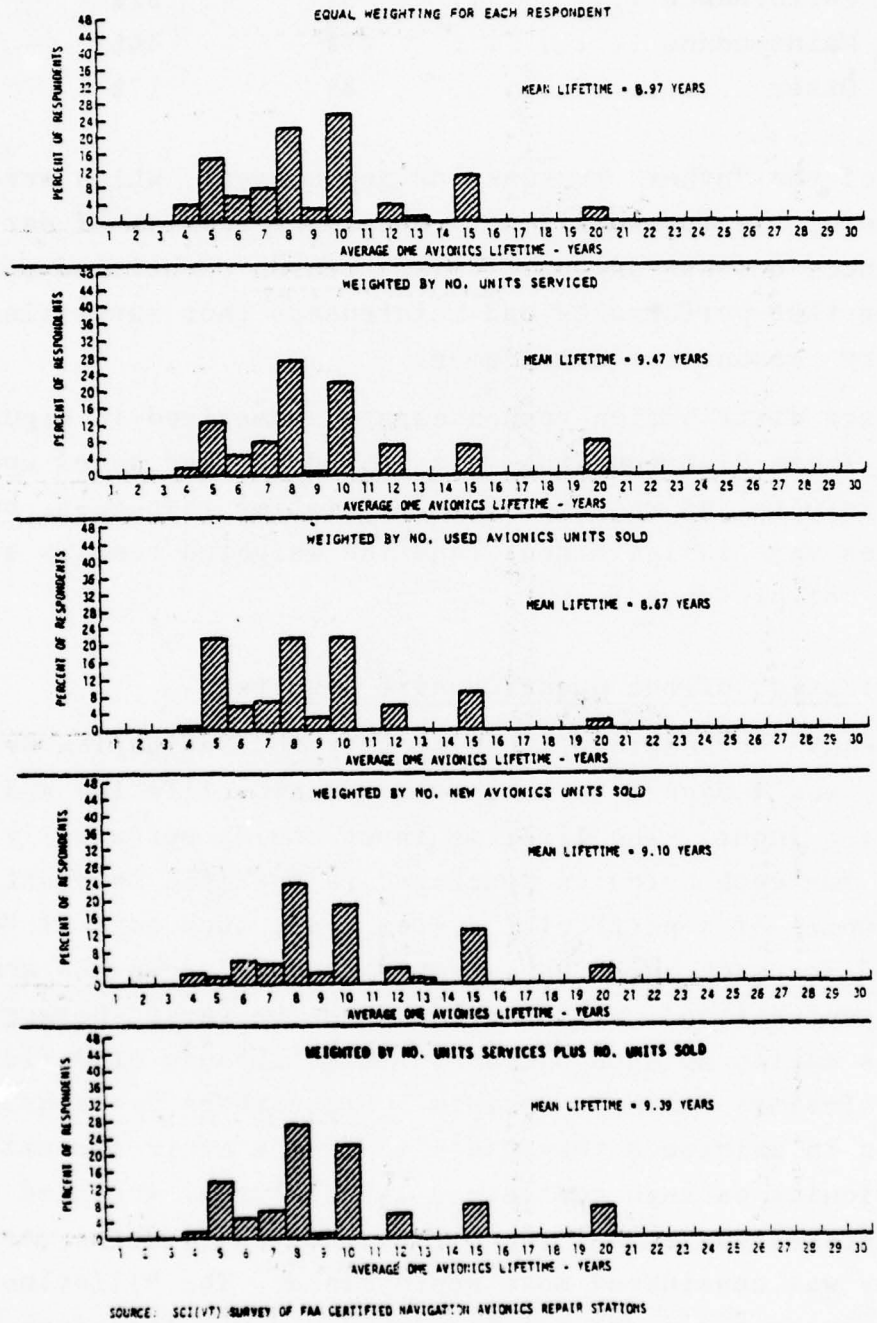
The navigation avionics lifetime results, for VOR and DME units are shown in in Figures A.9 and A.10. These figures each contain five bar charts. The first chart depicts the histogram of lifetime responses, equally weighted for all respondents. The last four charts in each figure depict the same results, weighted by the numbers of units serviced and/or sold as identified on each questionnaire. The weighted results were intended to take into account the variation in "experience" or knowledge of the respondents. The mean lifetimes are remarkably similar, however, throughout the non-weighted and weighted results.

Responses relative to the reasons for avionics replacement are summarized below:



SOURCE: SCI(VT) SURVEY OF FAA CERTIFIED NAVIGATION AVIONICS REPAIR STATIONS

Figure A.9 VOR Lifetime Results



SOURCE: SCI(VT) SURVEY OF FAA CERTIFIED NAVIGATION AVIONICS REPAIR STATIONS

Figure A.10 DME Lifetime Results

	Most Important	Important	Not A Factor
Performance	45%	51%	4%
Maintenance	47%	46%	7%
Other	8%	17%	76%

A review of the "other" reasons for replacement, which were filled in on some of the forms, did not reveal any entries of particular significance, nor was any particular "reason" mentioned often; indicating that performance and maintenance (not surprisingly) are the primary reasons for replacement.

The age distribution responses are summarized in Figures A.11 and A.12. These distributions were also developed based upon weighted results, as was done for the lifetime responses, but the differences were insignificant (and the weighted results are therefore not presented).

Utilization of the Questionnaire Results

The RAANS methodology, specifically the Navigation System Evaluator, was designed to accept an avionics lifetime and age distribution input. The lifetime input could, potentially, be different for each avionics "package" (a specific combination of avionics units of a particular system type, such as dual VOR/DME, identified for each avionics category used to group NAS users), but, for computational reasons, could not be varied between the components making up each package. Thus, the use of different VOR and DME lifetimes was not possible. Since there are considerably more VOR's in existence than DME's and since every current navigation avionics package considered in this study included a VOR but not necessarily a DME, the use of the VOR lifetime results from the survey was considered more appropriate. The "lifetime" model input for current general aviation avionics was therefore set at 11 years (a value obtained by rounding the 11.06 average VOR lifetime obtained from the non-weighted survey results). An independent,

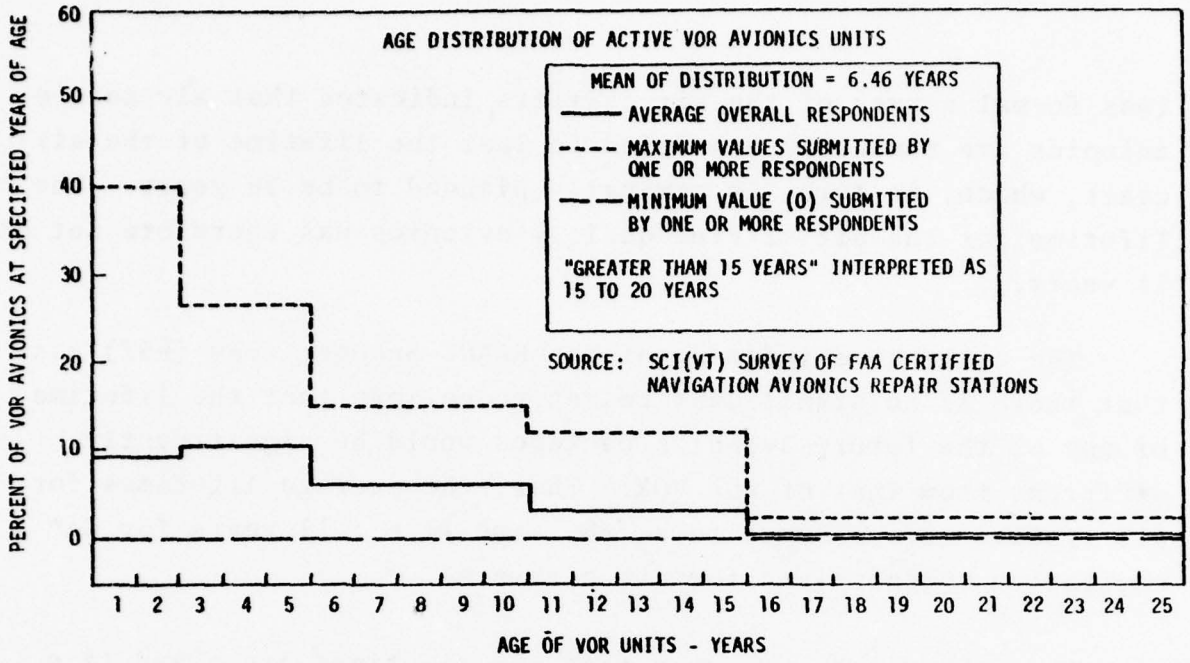


Figure A.11 VOR Age Distribution

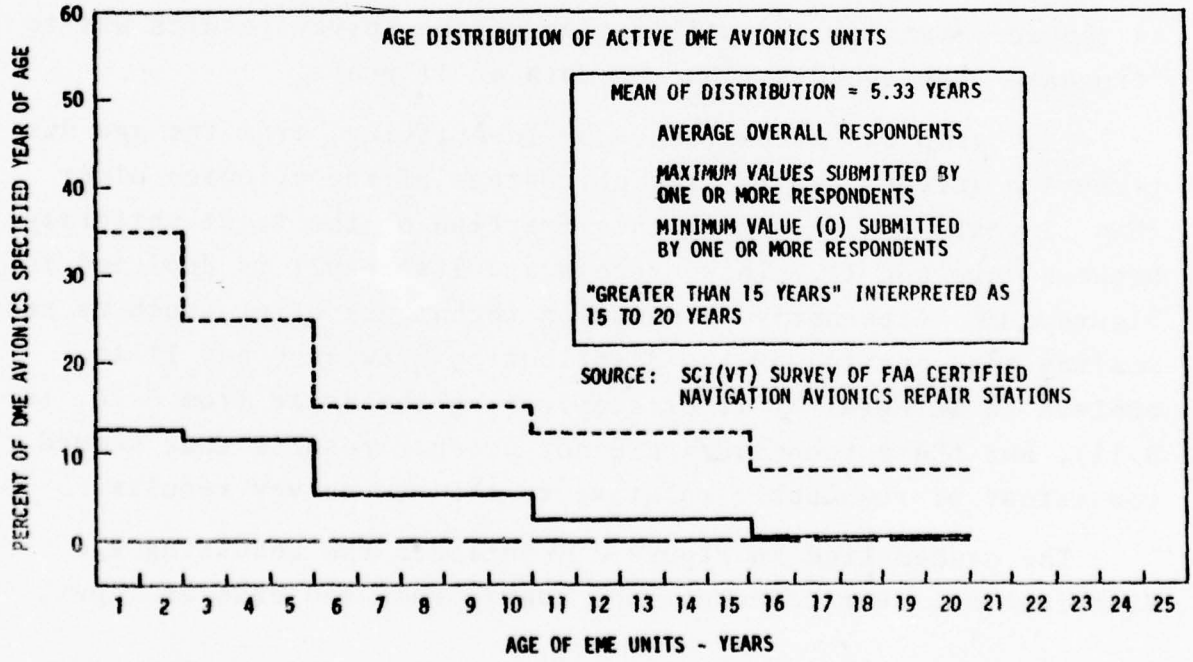


Figure A.12 DME Age Distribution

less formal survey of the air carriers indicated that air carrier avionics are nominally scheduled to last the lifetime of the aircraft, which, in turn, is nominally planned to be 14 years. The lifetime for the air carrier quality avionics was therefore set at 14 years.

The collective judgment of the RAANS Support Team (RST) was that there is no significant reason to believe that the lifetime of any of the future avionics packages would be significantly different from that of the VOR. Thus, the average lifetimes for all systems were assumed to be the same (i.e., 11 years for GA* navigation avionics, 14 for air carriers).

The methodology presumes that the lifetimes are fixed (i.e., that the avionics expire deterministically or automatically when the lifetime is reached). As a result, the age distribution must be defined from zero to the lifetime. Thus in the NSE model, no avionics older than the lifetime can exist. Hence, the next step in the reformatting and utilization of the survey results was to "truncate" the age distribution data at 11 years.

This step was accomplished by identifying, from the age distribution survey results, the percentage of the avionics older than 11 years and spreading this fraction of the total uniformly between zero and 11. This process and its result is depicted in Figure A.13. Alternative truncation techniques exist (such as rescaling that portion of the distribution between 0 and 11 to achieve an integral of 1; or compressing the scale from 0-20, to 0-11), but these techniques did not produce results that seemed consistent or reasonable relative to the raw survey results.

The dashed line in Figure A.13 reflects the resulting age distribution. For computational convenience and ease of input,

*General aviation includes air taxi executive, business, personal and other (non-air carrier) type of operation categories.

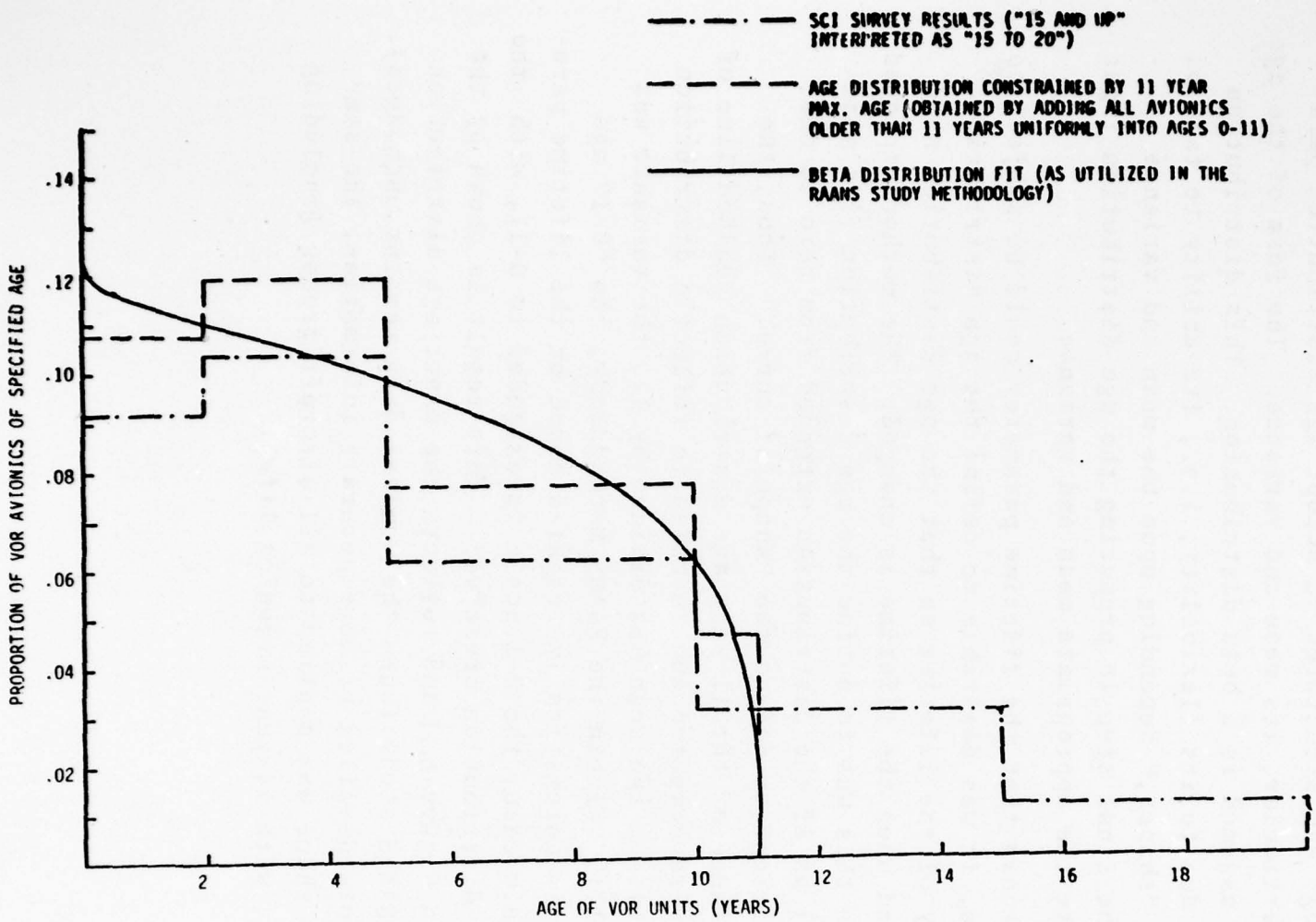


Figure A.13 General Aviation Enroute Navigation Avionics Age Distribution

the methodology was structured to accept age distribution parameters; in particular, its mean and variance. The form of the age distribution assumed is a beta distribution. This distribution was selected due to its flexibility, i.e., its ability to take on a variety of "shapes," depending upon the mean and variance selected. The final step in preparing the age distribution input was to compute the appropriate mean and variance.

It was known that the lifetime parameter could be subject to change. Thus, it was desirable to define the age distribution independently of the lifetime so that the age distribution need not be changed when the lifetime is changed. The method employed to accomplish this was to define the age distribution (its mean and variance) as if the distribution extended from zero to one. This is sufficient to define the "shape of curve." Thus, the mean and variance of the 11 year age distribution (dashed line of Figure A.13) were computed and rescaled to reflect a distribution from 0 to 1 (i.e., the mean was divided by 11, the variance was divided by 11^2). Within the RAANS methodology, the "0-1" age distribution is automatically rescaled based on the lifetime parameter. In this case, the 0-1 scale is extended to 0-11, with the shape of the distribution preserved. This result is shown by the solid line in Figure A.13 and reflects the exact age distribution used in the RAANS study (when the nominal data remains unchanged). In lieu of more detailed or more accurate information, the same distribution shape was applied to all aircraft groups (including air carriers, with 14-year avionics life).

A.2.4 Accelerated Navigation Avionics Retrofit Rates

Other than the baseline case (in which the current navigation system continues as the primary system through this study's planning horizon), all RAANS implementation scenarios include a transition from the current system to the specified alternative. As depicted in Figure A.14, both systems are operational during the transition period. Prior to this period, the NAS users must have current system avionics. After this period, they must be equipped with avionics compatible with the specified alternative navigation system. Thus, as simulated in this study, all retrofitting from current to alternative system avionics must take place during the transition period.

New aircraft that are purchased during the transition period are assumed to come equipped with the alternative system avionics. The "residual" current system avionics (purchased prior to the start of the transition period) in service at the beginning of the transition period, are phased out of service in several ways. Nominally, when they reach their expected lifetime (see Section A.2.3) they are replaced with alternative system avionics. If the transition period is long (i.e., greater than the expected avionics lifetime), then all avionics will be retrofitted in this

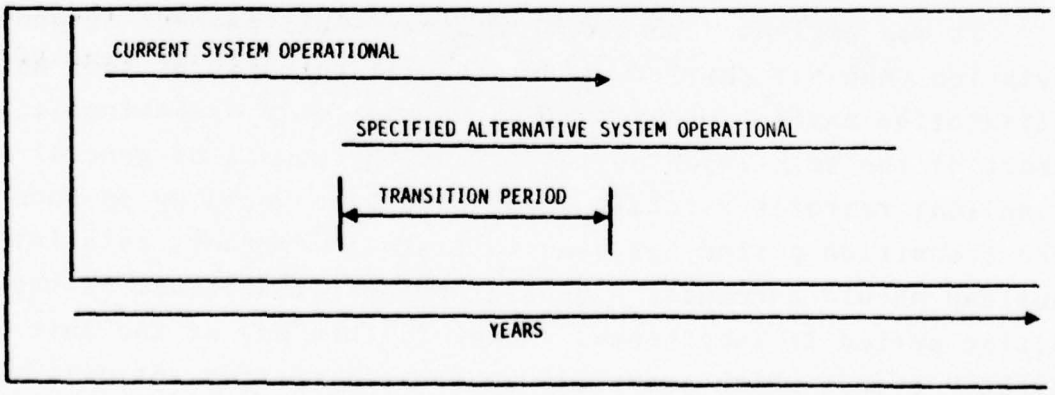


Figure A.14 Transition Period Definition

manner. However, if the transition period is short, then another method must be used to accelerate the retrofit rate to ensure a 100 percent conversion by the end of the transition period.

The basis for the accelerated retrofit rates adopted for this study are the perceived retrofit trends that were exhibited when complying with the rules implementing the following equipment [A3]:

(1) flight data recorders/cockpit voice recorders;
(2) transponders;
(3) distance measuring equipment;
(4) third attitude gyros;
(5) altitude alerting systems; and
(6) emergency locating transmitters.

These trends, for a three year transition period, were developed for air carrier and non-air carrier types of operation and are illustrated in Figures A.15 and A.16, respectively. A linear relationship of percent air carrier aircraft retrofitted vs. time was established as shown by the SCI approximation of Figure A.15. This rate is initiated 2¼ years prior to the end of the stipulated transition period and achieves 100% retrofit exactly at the end of the transition period. Figure A.17 illustrates the resulting family of accelerated RAANS avionics retrofit rates for transition periods of from 5 to 30 years, in five year increments. A three year transition rate is also presented for comparison purposes with the retrofit rate taken from Ref. A3 (shown in Figure A.17 by the dashed line).

It was estimated that a relatively small percent of general aviation (non-air carrier) aircraft will retrofit as soon as the alternative navigation system has become fully operational; i.e., start of the transition period. Thus the number of general aviation (GA) retrofit aircraft should start to build up as soon as the transition period has been initiated. Further, this initial buildup should encompass a greater number of aircraft as the transition period is lengthened. However, the "buy at the last minute" trends which prevailed in the air carrier retrofit rates, are assumed to be even more pronounced for GA.

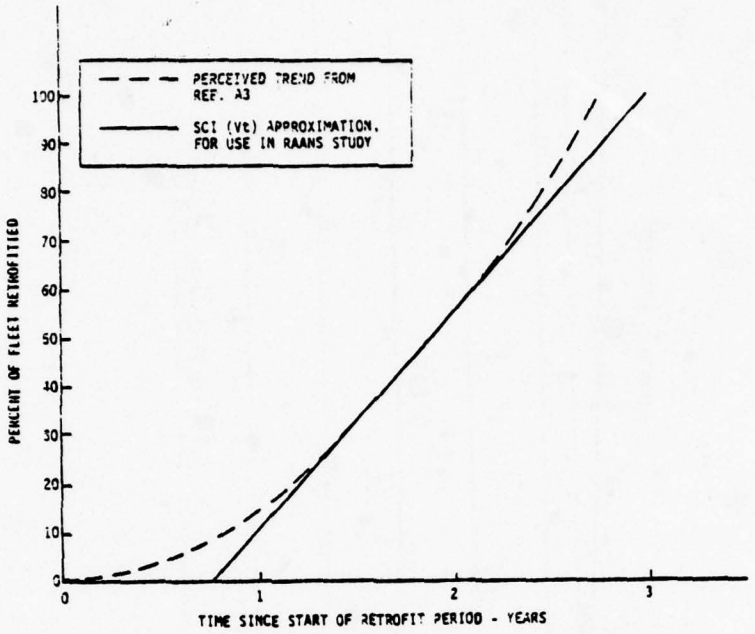


Figure A.15 Retrofit Rate, Three Year Transition Period (Air Carrier Type of Operation)

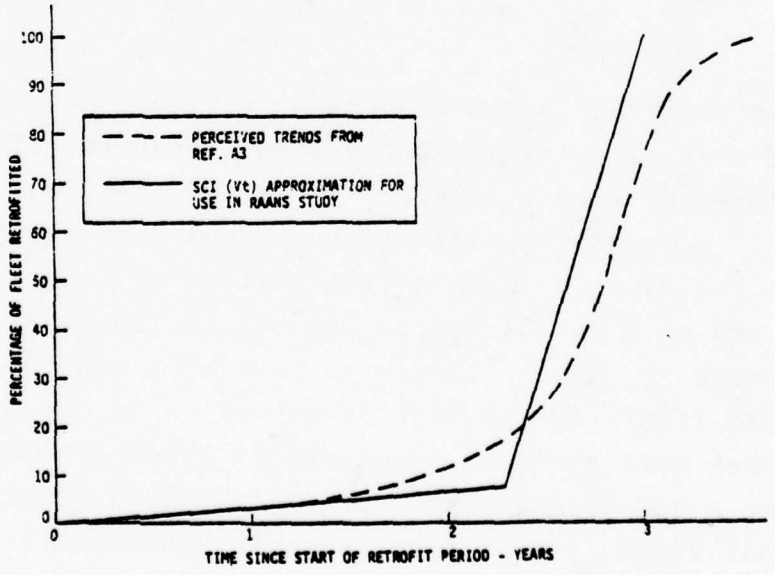


Figure A.16 Retrofit Rate, Three Year Transition Period (Air Taxi, Business/Executive, and Personal/ Other Types of Operation)

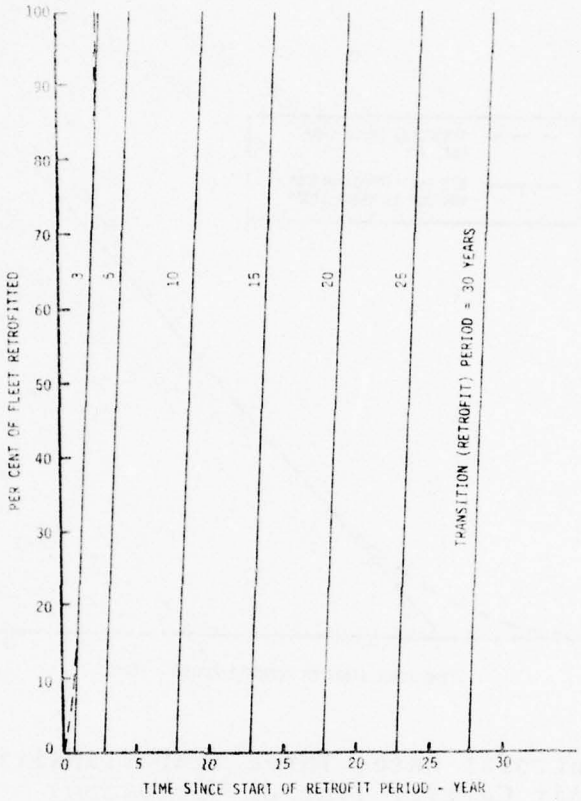


Figure A.17 RAANS Study Accelerated Retrofit Rates for 5 to 30 Year Transition Periods (Air Carrier Operations)

The GA trend curves presented in Figure A.16 (taken from Ref. A3) were used to establish a two-step linear retrofit relationship (solid lines of Figure A.16). The initial rate was determined to achieve 10 percent retrofit at the end of a designated transition period. The final or peaking retrofit trend line is set at zero percent 3/4 of a year prior to the end of the transition period (as compared to the air carrier's 2¼ years) and 100 percent at the end of the transition period. As shown in Figure A.18, these trend lines were excluded beyond their intersection, thereby producing a two segment rate with the desired properties. The three year trend line is also shown in Figure A.18 for comparison purposes with the dashed line reflecting the GA retrofit data contained in Ref. A3.

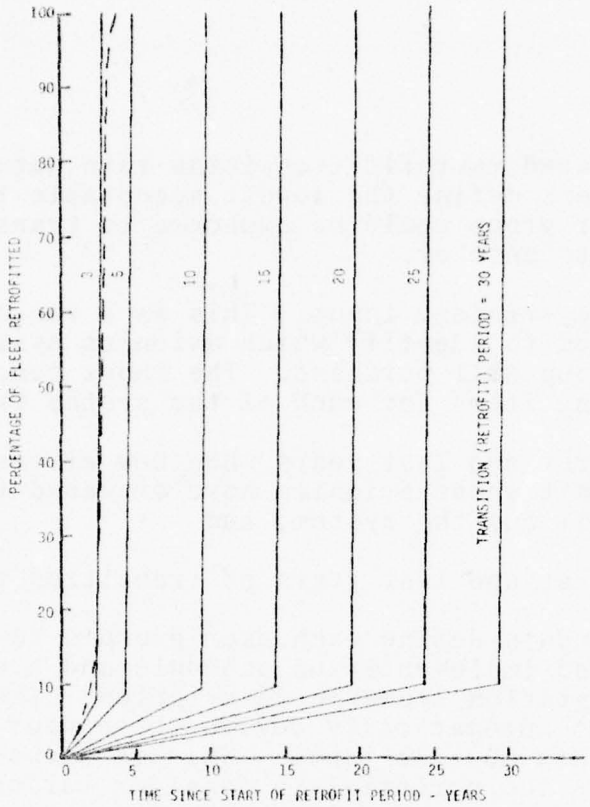


Figure A.18 RAANS Study Accelerated Retrofit Rates for 5 to 30 Year Transition Periods (Air Taxi, Business/Executive and Personal/Other Types of Operation)

A.2.5 Avionics Purchase Rate Logic

Prior to discussing the specific algorithms utilized for the computation of avionics purchases, it is appropriate to reiterate the input data (either nominal data inputs, or run-unique user inputs) which are used for purchase rate computations. These data, which are input and/or prestored for each of the 98 user groups, are described below:

(1) Avionics category.

(2) Region(s) of operation.

(3) Population forecasts (current population and the numbers of new and retired aircraft annually through the year 2000).

(4) Avionics age distribution parameters. These parameters identify the current avionics age distribution which, in turn, identifies the percent of the current group population whose avionics are 1 year old, 2 years old, etc. (up to the lifetime value).

(5) Accelerated retrofit/transition rate parameters. These parameters define the lowest acceptable rate by which the user group would be expected to transition from one system to another.

(6) Purchase strategy input. This is a run-unique user input, used to identify which avionics system types the user group will purchase. The input consists of the following items for each of the system types:

(a) first and last years when new aircraft (or aircraft whose avionics have exceeded their lifetime) will buy the system, and

(b) first and last years of transition to the system.

These inputs define each user group's response to the specified implementation schedule and are part of the implementation scenario description. The methodology does not automatically derive these user responses. These data must be input. This is necessary since there is the potential to consider various "complex" implementation scenarios where user groups might have a choice of different navigation system options, and it was not considered appropriate to have major purchase decisions made by (i.e., "hardwired" in) the methodology. The methodology does, however, verify the consistency between the input purchase strategy and the implementation schedule.

The computational algorithms for the avionics purchase rates are applied to each of the 98 user groups individually and will, therefore, be described in this manner. Within the methodology, when aggregated purchase rates are needed, such as for avionics price computations and for output, the appropriate individual user group results are summed.

Avionics Purchase Rates for Baseline (No Transition) Scenarios

The baseline or no-transition situation is characterized by the methodology via user purchase strategy input which prescribes that the user group will buy only the current system(s) throughout the designated planning period, and no transition to other systems will occur.

All avionics purchase logic is based upon a counting of an entire avionics "package." An avionics package is the specific

equipment configuration consisting of one or more avionics components which is associated with each RAANS avionics category and navigation system type combination. One example of a package would be "dual VOR-type B", i.e., RAANS Category 3. This is one package, the fact that dual VOR's are involved is accounted for with regard to avionics price computations.

A given user group may initially have either one avionics system (VOR) type, or two (VOR plus self-contained), depending upon whether they operate off-shore or oceanic in addition to either the CONUS and/or Alaska. The processing is performed independently for each system, and is the same for each. The purchase rates are established by the following computational steps:

(1) The avionics lifetime is identified (from the nominal data, by table look-up) based on the user group avionics category and the navigation system type (VOR, or "self-contained").

(2) The age distribution parameters, in conjunction with the lifetime, are used to define the age distribution. This distribution encompasses ages from 1 year to the lifetime value (for discussion purposes, the lifetime value will be denoted by L).

(3) The logic then evaluates the first L years individually (i.e., 1978 through 1977+L). For each year, the number of avionics whose age will exceed this lifetime is determined from the age distribution. The age distribution is currently being modeled as a Beta distribution, defined from age zero through the avionics lifetime. The mean and variance used to identify a unique distribution are prestored in the nominal input data. Each avionics package must be replaced in the year that its lifetime is reached except for those on retiring aircraft. A basic assumption is that retiring aircraft will have the oldest avionics. Thus, the number of retiring aircraft is subtracted from the number of "expiring" avionics packages, i.e., those packages that have reached their lifetime. The residual is the number of packages that must be replaced in that year. If there are more retirements than expirations, the excess number of retirements is subtracted from the number of expirations of the following year (i.e., these are the next oldest avionics). The resulting number of avionics packages which must be replaced is then added to the number of new aircraft for the year being considered. This computation produces the number of packages that must be purchased in the given year. Further, in light

of the RAANS methodology (i.e., lifetime is deterministic), this number of packages will "expire" L years hence, and again in another L years, etc. Thus, this value is stored as the "number of expirations" for these subsequent years, up to the end of the RAANS planning horizon.

(4) The logic then processes the years from 1977+L through the end of the RAANS time frame. This processing is identical to that described above, except that the age distribution is not used to identify expirations. Rather, the expiration data are obtained, as previously mentioned, from the purchases during the first L years.

Avionics Purchase Rates for a Transition from a Single System To Another Single System

As it relates to a particular user group, this condition is evidenced by purchase strategy input which prescribes that the user group purchases one system only through a certain year, and another system thereafter. The transition years are also specified. The methodology to determine the number of packages, by system type purchased in each year, encompasses the following steps:

(1) Purchase rates of the initial system (or systems) are constructed, exactly as before, throughout the system's purchase period. The computations performed for this purpose also result in the identification of the expiration rate in the subsequent years.

(2) The transition "base" population is computed. This is the number of aircraft that will complete transition and is computed as the number of aircraft in existence at the beginning of the transition (i.e., net population at the end of the year before transition) minus all aircraft which retire during the transition period. Again, this logic results from a deterministic assumption and implies that the aircraft owners are cognizant that the aircraft retirement is prior to the shutdown of the initial system and therefore will not need or purchase the new system package. Within the current RAANS retrofit logic, the entirety of the base population is forced to transition and under no circumstances are more aircraft allowed to transition. This implies that the transition will be "100% effective;" aircraft owners, as modeled, do not either refuse to transition or relinquish IFR requirements/capabilities.

When long transition periods are evaluated (close to or in excess of the avionics lifetime), it is possible to have avionics expire on aircraft destinated to retire before the end of the transition period. These avionics are not replaced by the new avionics type, because this entails a transition of an aircraft not in the base population. The methodology basically ignores this anomaly, essentially allowing the users to obtain "free use" of the avionics from the date of avionics package expiration to the date of aircraft retirement. No significant impact on the cost results due to this phenomenon has been observed. This conclusion stems from the fact that the lifetimes are not truly deterministic and users who would actually be faced with this situation would either attempt to prolong the avionics life (if possible at little cost), purchase used avionics (which would be readily available at little cost, due to the impending obsolescence), cease IFR flight and/or retire early. In any case, several minimum cost options would be available, which are not significantly different from the methodology's "zero-cost" result.

New aircraft (which enter the fleet during the transition period) are not included in the "base" population. It is assumed that they purchase the new system and are therefore not "forced" to transition.

(3) The model then processes the purchases of the new system for each year of the transition period. This is accomplished as follows:

(a) The accelerated retrofit rate parameters are used to identify the minimum cumulative proportion of the base population which must have transitioned by the end of the given year. This is multiplied by the base population to get the cumulative number of aircraft. The total number of transitions through the previous year is then subtracted from this figure, yielding the minimum number of transitions for the year being considered.

The retrofit rate parameters prescribe a two segment cumulative distribution, which is intended to describe the rate by which the population would normally transition, independent of avionics expiration considerations (i.e., transitions induced by pending decommissioning of the initial navigation system, other benefits, status, etc.). The form of the retrofit rate distribution is depicted in Figure A.19.

(b) The number of base population aircraft which would ordinarily have to replace their avionics due to

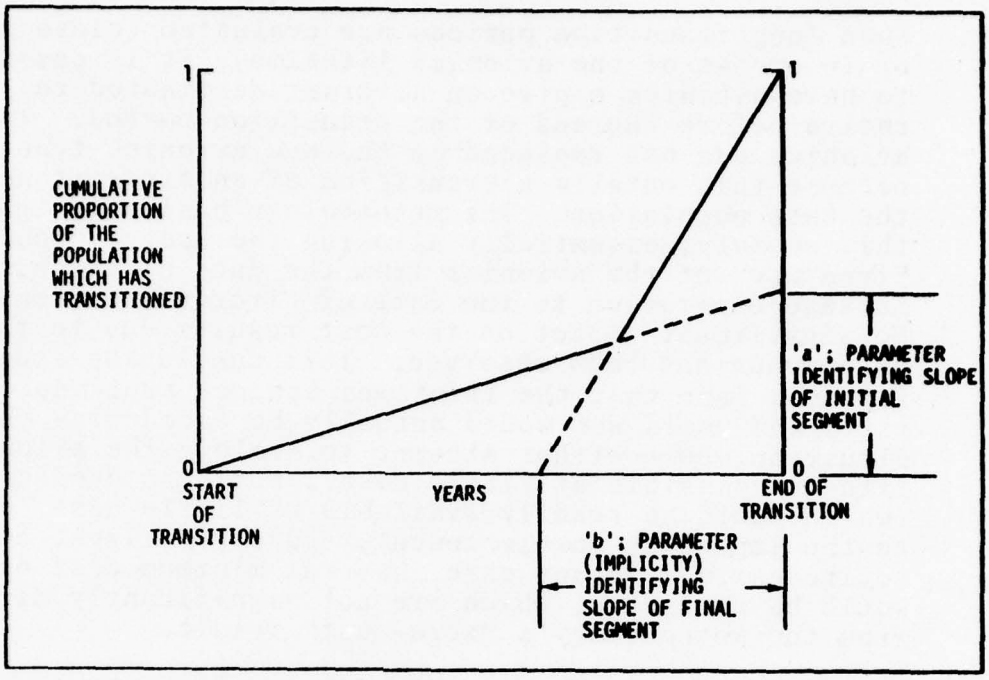


Figure A.19 Derivation of Avionics Accelerated Retrofit Parameters

avionics expiration are then determined. The expiration rate is obtained as described in the previous scenario (based on the computations from Step 1).

(c) The methodology will effect the transition of the number of aircraft identified in either (a) or (b) above, whichever is greater. If the expirations exceed the minimum requirement, then there are no "forced" transitions. If this is not the case, the methodology will force the transition of additional aircraft. It is assumed that these aircraft have the next oldest avionics; thus, the aircraft transitioned are taken from those whose avionics will expire in the subsequent year (or years, as needed). The expiration rate for the subsequent year(s) is then appropriately reduced.

(d) The number of purchases for the given year is then determined as the sum of the transition purchases and new aircraft purchases. As these purchases are accounted for, their associated expirations are tabulated to provide the expiration rate data for subsequent avionics replacement cycles (the lifetime for the new avionics types need not be the same as the initial system; the proper new system lifetime is looked-up and used).

(4) Lastly, the methodology processes the purchases of the new system for the years subsequent to transition in the same manner as described previously for the initial system (i.e., via considering new aircraft and avionics expirations).

For cost computation purposes (depreciation, maintenance, etc.), all avionics purchased remain in existence throughout their lifetime except where forced transitions occur.

"Generalized" Purchase Rate Processing/Computation Logic

As was previously mentioned, the processing logic actually used in the RAANS methodology is general, and is applied to both simple and complex implementation scenarios. The "complexity" of a scenario must be viewed from the point of view of a given user group. The two cases previously described are the two most typical scenarios that any user group is likely to encounter and in fact were the only scenarios used to produce the RAANS results presented in this report. However, the RAANS avionics purchase logic was designed to accept more complex scenarios. This generalized logic is summarized in the following paragraphs.

The user groups, as currently defined, may initially have either one or two navigation system/avionics types, and they may operate in from one to four separate regions (none of the groups, as currently defined, operate in all five). In the extreme, a given user group could buy as many as four new system types, with different transition periods for each, and, logically, with something other than a one-to-one mapping between the original system(s) and its (their) replacement(s).

With one exception, the generalized processing logic is very similar to the two cases just described. Avionics purchases are identified for each group and for each system, individually. This includes consideration of transitions, which can also be performed one group and one system at a time, exactly as before. The fact that a given group transitions to more than one system, at the same or different times, does not affect the purchase

logic. What is affected, however, is the identification of which of the original system(s) are being replaced by which of the new systems. This identification must be made in order to establish when (the rate by which) the original systems can be discarded. This may have an impact on depreciation and maintenance schedules, when any forced transitions are involved.

Within the RAANS methodology, the replacement relationships are determined as follows. First, if the user is scheduled to buy a given initial system throughout the RAANS time frame, it is presumed to be replaceable (as in the baseline case). If this is not the case, the new system(s) which the user must have in order to permit discarding of an initial system (VOR or self-contained) are determined by the steps described below (VOR replacement will be used as an example):

(1) The user group region(s) of operation are identified.

(2) Of these regions, those wherein VOR is not operational are ignored (the residual regions are presumed to be the regions wherein the user group's requirements were being satisfied by VOR, i.e., the CONUS and/or Alaska).

(3) The systems that the user will ultimately be purchasing (i.e., at the end of the time frame) are identified.

(4) Of these systems, those which are not operational in the regions identified in (2) are ignored. The residual are the systems that the user group will buy, that are operating in regions where the user group initially needed VOR. These systems are presumed to be the necessary replacements for VOR.

These system replacement relationships are used to determine the rate by which the initial system (in this example, VOR) can be discarded. This computation is complex, and is accomplished as follows for each user group and each of the two initial systems:

(1) The replacement systems are identified, as described above.

(2) The number of aircraft that will actually make transitions to all of the replacement systems is then established. This is computed in the same way as the "base" population is computed, but encompassing a "transition"

period beginning with the earliest transition start year (of the systems of interest) and ending at the latest transition end year.

(3) Next, the rate by which the above base population will have all of the replacement systems is determined. For this purpose, the cumulative number of transitions to each of the replacement systems are identified (from the normal purchase rate computations). A table is then constructed by selecting the minimums of the cumulative transitions. This table is constrained not to exceed the "base" population from (2). These minimum values are the maximum numbers of aircraft which could potentially have all replacement systems. Since the methodology assumes that aircraft with the oldest avionics transition first, it follows (under this assumption) that this maximum value does in fact reflect the number of aircraft which have made all required transitions.

The non-cumulative counterpart of this table is used to identify the rate by which the existing equipment can be discarded. In reference to the two examples previously discussed, it is this logic that identifies that no avionics packages are discarded in the baseline case, and that there is a one-to-one correspondence between transitions and discards in the single system transition case. For user cost computation purposes, avionics packages discarded are presumed to be the oldest. Their year of purchase can be identified; therefore, also their initial cost. This information is needed if the unit is still being depreciated as of when it is no longer needed, so that accelerated depreciation can be tabulated.

A.2.6 Cumulative Avionics Production Cost Reduction Factor

The avionics purchase price projected to be paid by NAS users will generally reflect the production base of that unit at the time of purchase. For avionics and similar products, the unit costs (in constant dollars) are nominally reduced by a constant percentage whenever the number of units produced are doubled [A4]. The cost of the Nth item can then be expressed as:

$$C_N = C_1 \, N^{(\ell nP/\ell n2)}$$

where

C_1 = cost of the first item, and

P = learning curve factor whose value lies between 0 and 1.0.

For avionics units such as those considered in this study the value of P should lie somewhere bewteen 0.80 and 0.90. The cost reduction sensitivities to the value of P and production to date, N, are displayed in Table A.8 taken from Ref. A4.

Based on data supplied by Mr. G.F. Quinby* (a subcontractor to SCI (Vt) on the RAANS project) and subsequent reviews by the RAANS Support Team, RST (composed of the RAANS COTR, contractor personnel and FAA personnel from the Office of Aviation Systems Plans - Planning Requirements Branch (ASP 120), Office of Systems Engineering Management - Technical Programs Division (AEM-200) and Systems Research and Development Service - Enroute Navigation Branch (ARD-330)), the learning curve factor for RAANS applications was established at 0.9. The resulting cost reduction factors' sensitivities to cumulative production base are illustrated in Figure A.20.

Subsequent discussions with the RST revealed a concern over the "open endedness" of the production base cost reduction factor approach, i.e., unit costs continue to decrease forever even after a very large number of units have been produced. The solution to this problem was the application of a production base cutoff value, beyond which no additional cost reductions were achieved. The cutoff was selected based on the estimated [A5] ratios of the unsophisticated versions (Section 4.2) of Omega, Loran-C and GPS avionics unit costs relative to the costs of a comparable VOR unit. These ratios were estimated solely on the relative complexity of the units without regard to production base.

*G.F. Quinby is Vice Chairman, Radio Technical Commission for Aeronautics, Member of the Advisory Council - NBAA; Member of the Airport and Airways, and Statistics and Forecasting Committees - GAMA; former President of the Aviation Distributors and Manufacturers Association; and is a Senior Vice President of NARCO Avionics.

Table A.8

Avionics Production Cost Sensitivity Factor's Sensitivity to Learning Curve Factor and Cumulative Production Base

	P = 0.9		P = 0.85		P = 0.8	
N	C_N	$\overline{C}_N$	C_N	$\overline{C}_N$	C_N	$\overline{C}_N$
1	1	1	1	1	1	1
10	0.70	0.85	0.58	0.79	0.48	0.74
10^2	0.50	0.62	0.34	0.49	0.23	0.39
10^3	0.35	0.44	0.20	0.29	0.11	0.19
10^4	0.25	0.31	0.12	0.17	0.05	0.09
10^5	0.17	0.22	0.07	0.09	0.02	0.04
10^6	0.12	0.15	0.04	0.05	0.01	0.02

C_N = per unit cost of Nth item relative to cost of first item.

$\overline{C}_N$ = average cost of N items relative to cost of first items.

P = learning curve factor

Source: Reference A4

Figure A.21 illustrates how the 1977 costs (Section 4.2) of these avionics units are expected to decline due to additional production, predicted on the use of a learning curve factor, P, equal to 0.9 and no cutoff. The unit cost of the VOR with over one-half million units produced through 1977 is very insensitive to the additional 100,000 units shown on the figure dropping from \$1495* to \$1454. GPS, Omega and Loran-C with 100 or less units produced through 1977 exhibit substantial reductions in their per unit costs with the additional production of 100,000 units. Specifically their cost dropped from \$14,331 to \$4,513; \$6,708 to \$2,347; and \$6,708 to \$2,347, for GPS, Loran-C and Omega, respectively.

*1977 avionics cost derivation is presented in Appendix B

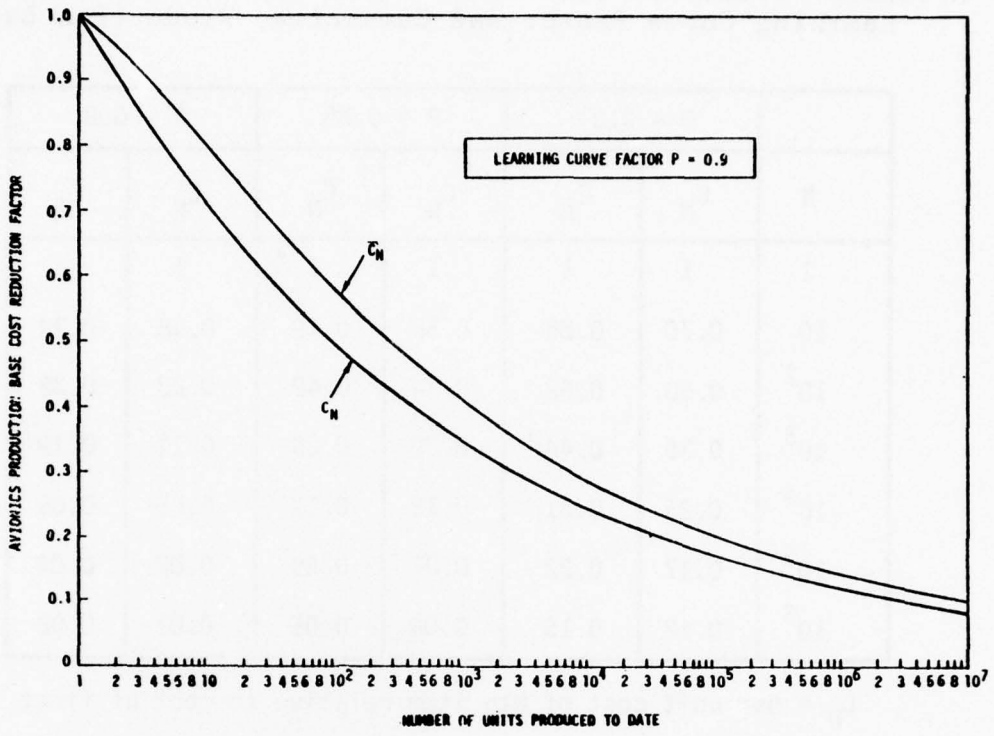
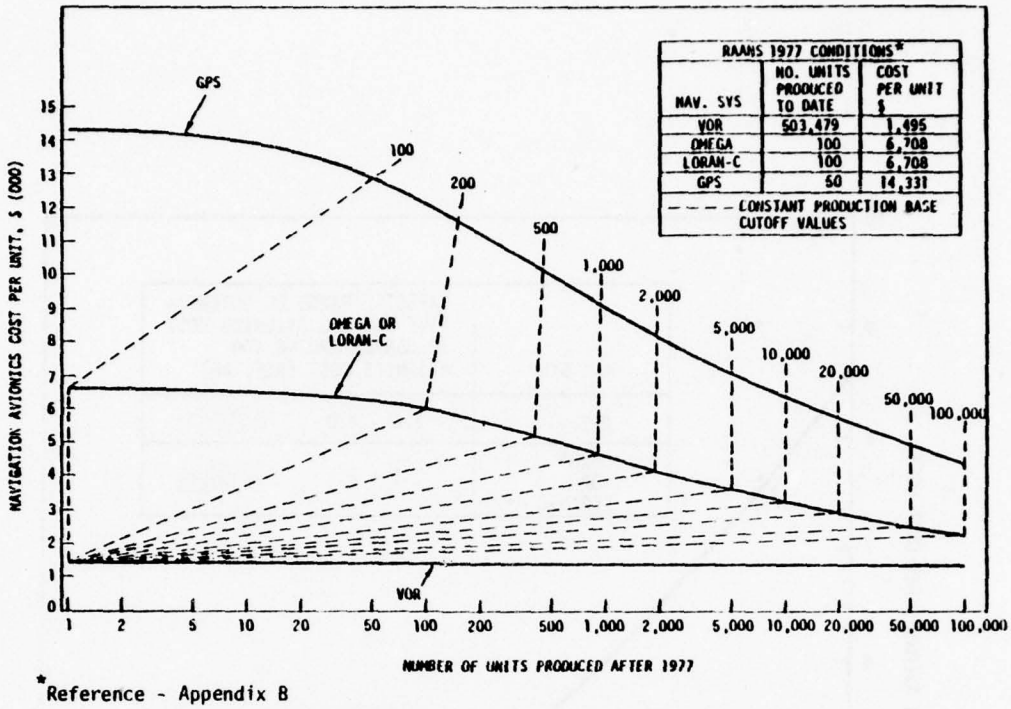


Figure A.20 Production Base Cost Reduction Factors Relative to First Unit Price [Cost of Nth Unit (C_N) and Average Unit Cost of First Through Nth Unit ($\bar{C}_N$)]

Contours of production base cutoffs are superimposed on the avionics unit cost trend lines (Figure A.21) to establish the minimum unit cost that would result for each navigation system avionics if the designated production base cutoff were applied. For the VOR all of these (dotted) lines converge on the current cost value, reflecting the fact that additional production base related cost reductions will not occur unless the cutoff exceeds the current number of units produced, i.e., 503,479, the location of the other avionics cutoff contours is determined by taking the designated cutoff value, subtracting the number of units produced to date (1977), either 50 (GPS) or 100 (Omega and Loran-C) and locating the resulting value on the "number of units produced after 1977" scale.



*Reference - Appendix B

Figure A.21 Variation of Avionics Unit Cost as a Function of Number of Units Produced After 1977 (Least Sophisticated-Least Costly Units)

For each of the cutoff values the ratio of GPS, Loran-C and Omega unit costs to VOR unit costs were developed and are illustrated in Figure A.22. The expected range of these ratios, 3.0 - 4.0 for GPS and 1.5 - 2.5 for both Omega and Loran-C, are superimposed. The cutoff values which are within these limits range from 16,000 to 100,000 units. A cutoff of 20,000 units, the midpoint of the Omega and Loran-C to VOR expected cost ratios, was selected and used in all subsequent RAANS analysis. Curves of cost of the Nth unit and average unit cost of the first through the Nth unit reflecting the 20,000 unit production cutoff are presented in Figure A.23.

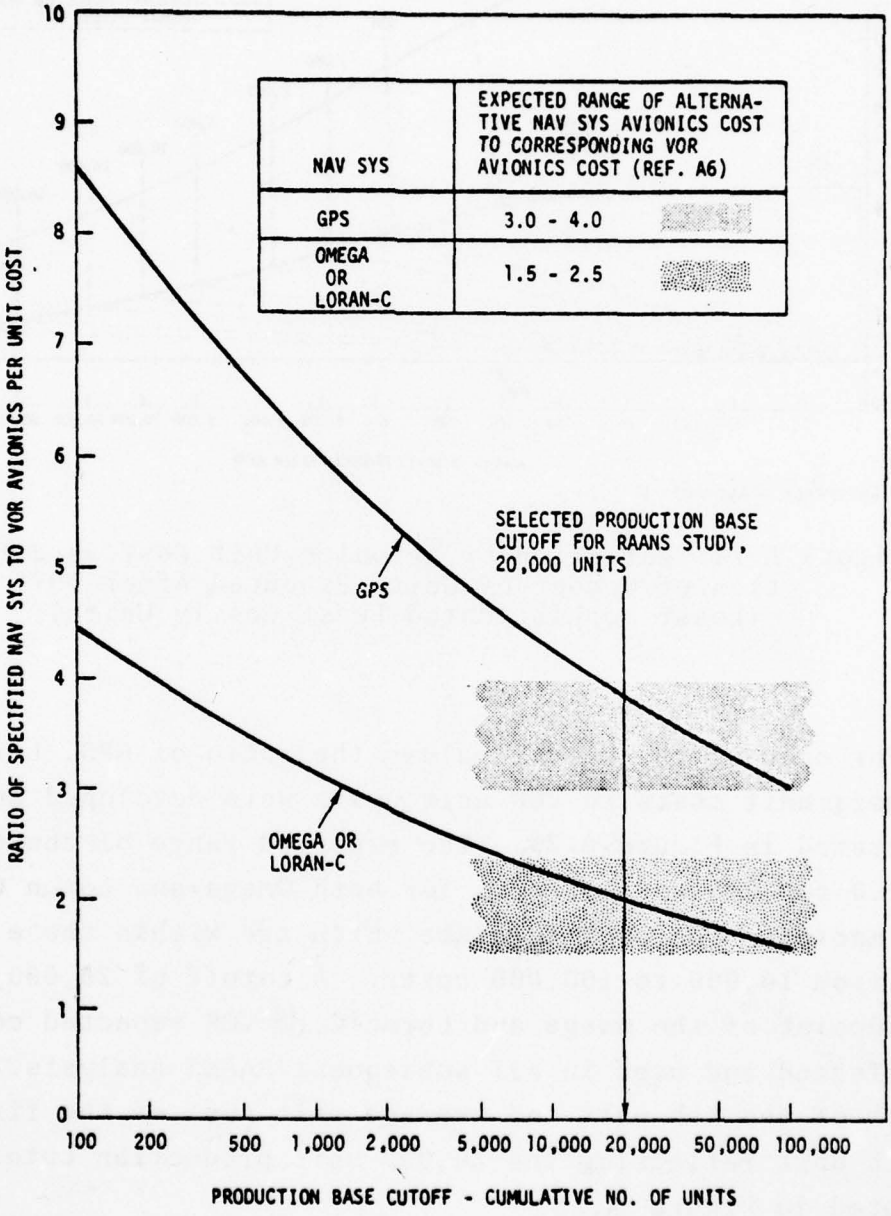


Figure A.22 RAANS Study Avionics Production Base Cutoff Selection Process
(Least Sophisticated-Least Costly Avionics Category)

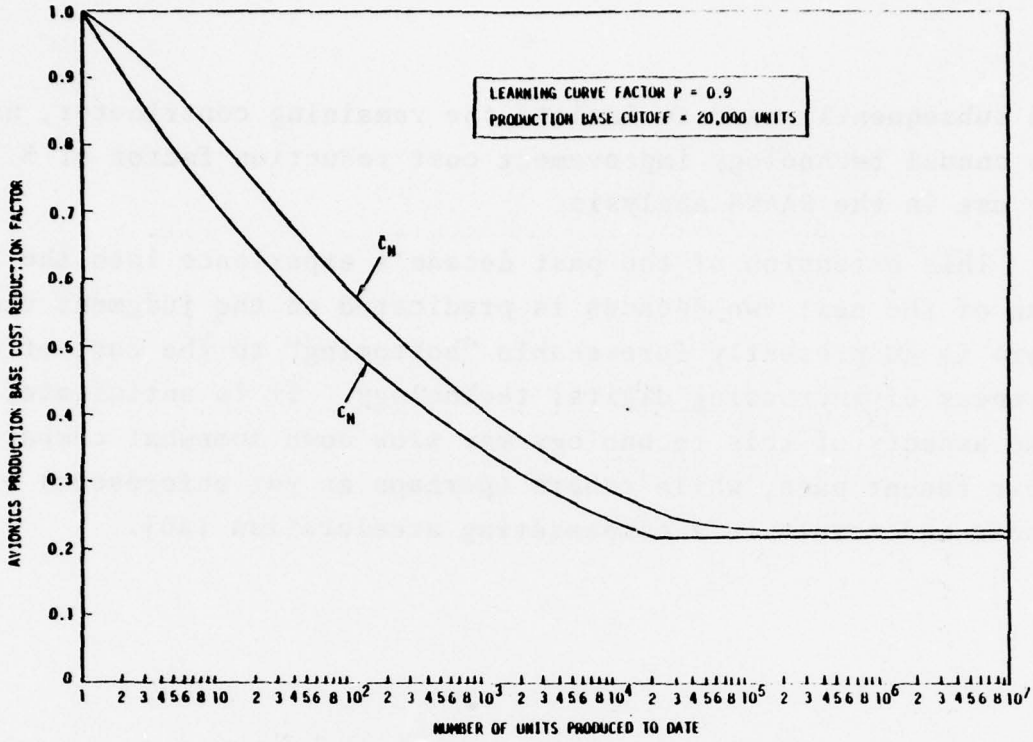


Figure A.23 Production Base Cost Reduction Factors Relative to First Unit Price [Cost of Nth Unit (C_N) and Average Unit Cost of First Through Nth Unit ($\bar{C}_N$)]

A.2.7 Technology Improvement Cost Reduction Factor

In addition to the production base influence (Section A.2.4), avionics cost will also reflect general improvements or breakthroughs in electronics which result in lower costs. This cost reduction factor is modeled in the RAANS study as a linear function of time (years).

During the past ten years, technology improvements have essentially offset inflation [A6] with respect to navigation avionics costs. This is equivalent to a constant dollar reduction of about 44% over the last decade or an annual rate of 5.6% attributable to the combined affect of improved technology and increased production. Based on the avionics age distribution developed in A.2.3, the production base contribution to the 5.6% rate was estimated

and subsequently used to isolate the remaining contributor, namely, the annual technology improvement cost reduction factor of 5.1% for use in the RAANS analysis.

This extension of the past decade's experience into the time-span of the next two decades is predicated on the judgment that there is no presently foreseeable "bottoming" to the cost effectiveness of increasing digital technology. It is anticipated that some aspects of this technology may slow down somewhat compared to their recent pace, while others (perhaps as yet unforeseen) will appear and result in a compensating acceleration [A6].

APPENDIX B

DEVELOPMENT OF RAANS NAVIGATION SYSTEM AND AVIONICS COSTS

The material presented in this appendix develops the procedures, identifies the relevant data sources, and describes the assumptions used to quantify those costs needed as input to produce the RAANS study results. These costs consisted of system implementation and recurring costs and enroute navigation avionics component purchase prices for each type of navigation system evaluated. This appendix is divided into two parts. Part one addresses the navigation system cost, while part two deals with avionics costs.

B.1 NAVIGATION SYSTEM COSTS

The implementation and recurring costs, both non-FAA and FAA, for each navigation system evaluated in this study, are listed in Table B.1. Implementation costs were divided into four cost categories, specifically: hardware, R&D, training and unassigned. The latter is a catch-all used when a cost component's application has not been identified. The RAANS methodology was designed to apply a technology improvement factor to just the hardware cost category. The potential also exists to apply different inflation rates to hardware and labor intensive cost categories. For these reasons and to facilitate comparing and adjusting the cost of different systems, an attempt was made to break the total implementation cost into the aforementioned categories. However, this study's ground rule of setting the navigation system technology improvement factor at zero and the annual inflation rate at 7 per cent for all cost components precluded the necessity of dividing the total costs into each of the designated components.

As with the implementation costs, and primarily to aid in establishing relative cost differences, the annual recurring costs were divided into six components, as follows: O&M, spares

Table B.1
Anticipated Navigation System Costs (1977 Dollars)

		IMPLEMENTATION COSTS													
		BASELINE (NON-FAA) COSTS, EXCLUDING SUNK COSTS							INCREMENTAL FAA COSTS						
		CURRENT NAVIGATION SYSTEMS			ADVANCED NAVIGATION SYSTEM CANDIDATES				CURRENT NAVIGATION SYSTEMS			ADVANCED NAVIGATION SYSTEM CANDIDATES			
		(1) VOR/DME[a] UPGRADED	(2) VOR/DME[a] 2ND GEN.	(3) SELF-CONTAINED	(4) LORAN-C	(5) OMEGA	(6) D. OMEGA[f]	(7) GPS	(8) VOR/DME[a] UPGRADED	(9) VOR/DME[a] 2ND GEN.	(10) SELF-CONTAINED	(11) LORAN-C	(12) OMEGA	(13) D. OMEGA[f]	(14) GPS
	IMPLEMENTATION COST, $M														
	Area Independent														
(A)	Hardware	NA	NA	NA	(b)	17.5	17.5	503	0.5	0.5	0.0	1.0	0.6	1.2	0.0
	R&D					0.6	0.6	0	0.5	0.5	0.0	2.0	2.0	4.0	5.0
	Training					0.5	0.5	0	0.1	0.2	0.0	0.5	0.5	0.5	0.5
	Unassigned					0.5	0.5	260	2.0	2.0	0.0	2.0	1.0	1.5	2.0
	Total					19.1	19.1	763	3.1	3.2	0.0	5.5	4.1	7.2	7.5
	CONUS														
(B)	Hardware	NA	NA	NA	NA	NA	NA	NA	0.0	104.0	0.0	42.00	NA	NA	0.0
	R&D								0.0	0.0	0.0	0.00			0.0
	Training								0.0	4.5	0.0	0.18			1.5
	Unassigned								54.9(c)	0.0(d)	0.0	21.50			14.5
	Total								54.9	108.5	0.0	63.68			16.0
	Alaska														
(C)	Hardware	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	8.00	0.0	1.68	0.0
	R&D								0.0	0.0	0.0	0.00	0.0	0.00	0.0
	Training								0.0	0.0	0.0	0.03	0.2	0.60	0.2
	Unassigned								22.5	25.0[e]	0.0	2.50	1.5	3.00	1.5
	Total								22.5	25.0	0.0	10.53	1.7	5.28	1.7
	CONUS Off-Shore														
(D)	Hardware	NA	NA	NA	60.0	NA	NA	NA	NA	NA	0.0	54.00	0.0	2.2	0.0
	R&D				0.0						0.0	0.00	0.0	0.0	0.0
	Training				0.0						0.0	0.23	0.4	1.1	0.4
	Unassigned				6.0						0.0	12.50	3.5	7.0	3.5
	Total				66.0						0.0	66.73	3.9	10.3	3.9
	Alaska Off-Shore														
(E)	Hardware	NA	NA	NA	24.0	NA	NA	NA	NA	NA	0.0	8.0	0.0	0.56	0.0
	R&D				0.0						0.0	0.0	0.0	0.00	0.0
	Training				0.0						0.0	0.1	0.1	0.20	0.1
	Unassigned				2.4						0.0	1.5	0.5	1.00	0.5
	Total				26.4						0.0	9.6	0.6	1.76	0.6
	Oceanic														
(F)	Hardware	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	NA	0.0	NA	0.0
	R&D										0.0		0.0		0.0
	Training										0.0		0.1		0.1
	Unassigned										0.0		0.5		0.5
	Total										0.0		0.6		0.6

		ANNUAL RECURRING COSTS													
		NON-FAA SUPPORTING COSTS							INCREMENTAL FAA COSTS						
		CURRENT NAVIGATION SYSTEMS			ADVANCED NAVIGATION SYSTEM CANDIDATES				CURRENT NAVIGATION SYSTEMS			ADVANCED NAVIGATION SYSTEM CANDIDATES			
		(1) VOR/DME[a] UPGRADED	(2) VOR/DME[a] 2ND GEN.	(3) SELF-CONTAINED	(4) LORAN-C	(5) OMEGA	(6) D. OMEGA[f]	(7) GPS	(8) VOR/DME[a] UPGRADED	(9) VOR/DME[a] 2ND GEN.	(10) SELF-CONTAINED	(11) LORAN-C	(12) OMEGA	(13) D. OMEGA[f]	(14) GPS
	ANNUAL RECURRING COSTS, $M/YR														
	Area Independent														
(G)	O&M	NA	NA	NA	a	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Spares Replacement					0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Staff					0.75	0.75	0.0	0.5	0.5	0.0	0	0.5	0.5	0.5
	Charting					0.15	0.15	0.0	0.1	0.1	0.0	0..	0.1	0.1	0.1
	Other					2.10	2.10	0.0	0.5	0.5	0.0	0.5	0.5	0.5	0.5
	Unassigned					1.54	1.54	127.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total					4.54	4.54	127.0	1.1	1.1	0.0	1.1	1.1	1.1	1.1
	CONUS														
(H)	O&M	NA	NA	NA	NA	NA	NA	NA	0.0	18.70	0.0	0.00	NA	NA	0.00
	Spares Replacement								0.0	1.00	0.0	0.00			0.00
	Staff								0.0	0.00	0.0	0.00			0.25
	Charting								0.0	0.00	0.0	0.00			0.10
	Other								0.0	0.00	0.0	0.69			0.00
	Unassigned								32.5	0.00	0.0	1.40			0.00
	Total								32.5	19.70	0.0	2.09			0.35
	Alaska														
(I)	O&M	NA	NA	NA	NA	NA	NA	NA	0.0	1.50[g]	0.0	0.07	0.00	0.48	0.00
	Spares Replacement								0.0	0.04[h]	0.0	0.00	0.00	0.24	0.00
	Staff								0.0	0.00	0.0	0.00	0.02	0.11	0.02
	Charting								0.0	0.00	0.0	0.00	0.05	0.05	0.05
	Other								0.0	0.00	0.0	0.00	0.00	0.00	0.00
	Unassigned								2.6	0.00	0.0	0.25	0.00	0.00	0.00
	Total								2.6	1.54	0.0	0.32	0.07	0.88	0.07
	CONUS Off-Shore														
(J)	O&M	NA	NA	NA	0.0	NA	NA	NA	NA	NA	0.0	0.00	0.00	0.44	0.00
	Spares Replacement				0.0						0.0	0.00	0.00	0.44	0.00
	Staff				0.0						0.0	0.00	0.09	0.20	0.09
	Charting				0.0						0.0	0.00	0.05	0.05	0.05
	Other				0.0						0.0	0.18	0.00	0.00	0.00
	Unassigned				3.1						0.0	1.80	0.00	0.00	0.00
	Total				3.1						0.0	1.98	0.14	1.13	0.14
	Alaska Off-Shore														
(K)	O&M	NA	NA	NA	0.00	NA	NA	NA	NA	NA	0.0	0.00	0.00	0.16	0.00
	Spares Replacement				0.00						0.0	0.00	0.00	0.08	0.00
	Staff				0.00						0.0	0.00	0.04	0.07	0.04
	Charting				0.00						0.0	0.00	0.05	0.05	0.05
	Other				0.00						0.0	0.02	0.00	0.00	0.00
	Unassigned				2.38						0.0	0.25	0.00	0.00	0.00
	Total				2.38						0.0	0.27	0.09	0.36	0.09
	Oceanic														
(L)	O&M	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	NA	0.00	NA	0.00
	Spares Replacement										0.0		0.00		0.00
	Staff										0.0		0.06		0.06
	Charting										0.0		0.05		0.05
	Other										0.0		0.00		0.00
	Unassigned										0.0		0.00		0.00
	Total										0.0		0.11		0.11

FOOTNOTES:

(a) 2nd Generation VOR/DME Costs Nominal Contained in NSE File. Upgraded VOR/DME Cost may be Used for Special Scenarios.

(b) Incorporated in CONUS Off-Shore and Alaska Off-Shore Costs.

(c) *23.8 Incorporated into this Category* to Account for Recurring Costs Larger than Steady State During Transision to Upgraded VOR/DME System.

(d) 86.5 Incorporated into this Category to Account for Recurring Costs Larger Than Steady State During Transition to 2nd Generation VOR/DME System.

(e) Value Reduced to 17.0 for Those Scenarios Where an Advanced Navigation System is to Replace Alaska's 2nd Generation VOR/DME System to Account for 6 Rather than 10 New VOR's.

(f) Totals of Omega and Differential Costs.

(g) Value Reduced to 1.36 for Those Scenarios where an Advanced Navigation System is to Replace Alaska's 2nd Generation VOR/DME System, see Footnote (e).

(h) Value Reduced to 0.036 for Those Scenarios where an Advanced Navigation System is to Replace Alaska's 2nd Generation VOR/DME System, see Footnote (e).

replacement, staff, charting, other and unassigned. The "other" category was established for costs that were known not to be any of the first four categories, while the unassigned was used for costs without specific application information.

The bases for the costs presented in Table B.1 are described in the following paragraphs which are keyed to the column numbers and row letters of that table.

Columns 1&2: VOR/DME Upgraded and Second Generation Costs

Since VOR/DME is the current FAA system, non-FAA costs are not applicable and are set equal to zero.

Column 3: Self-Contained Baseline Costs

Since by definition the self-contained system, e.g., INS, requires no external support system, the non-FAA costs were deemed not applicable (NA) and set equal to zero.

Column 4: Loran-C Baseline Costs

The assumption is made that the Loran-C baseline system is/was designed to serve only the CONUS off-shore and/or the Alaska off-shore areas. Expansion of the Loran-C system to serve the interior was considered to be an FAA incremental cost (Column 11). Hence, this Column (4) addresses the non-sunk costs associated with the Loran-C system that provides off-shore coverage.

(4-D) Proposed Coast Guard plan identifies 10 new stations (exclusive of mid-continent chain) required to provide CONUS off-shore coverage (Figure 2-1, Ref. B1); these are:

Moses Lake	Grangeville
Fallen	Raymonville
Searchlight	Malone
Middletown	Seneca
International Falls	Caribou

Average cost per ground station including building, electronics, survey, land buy or lease, installation

and power plant was estimated at $6M (Ref. B1, Section 4.4.2). This basic baseline cost was increased by 10% to cover R&D, training, modifying existing (4) stations and other, based on the judgement of the RAANS Study Team (RST).

(4-E) Proposed Coast Guard plan identifies 3 new stations required to provide Alaska off-shore coverage (Figure 2-1, Ref. B1); these are:

Tok
Shoal Cove
Williams Lake

The CONUS average cost per station of $6M was increased to $8M to account for higher costs associated with remote location installations. This increase was based on the judgment of the RST. The same 10% factor was applied to cover R&D, training modifying existing (1) stations and other capital costs associated with station implementation.

(4-J) Baseline annual CONUS off-shore related recurring costs were based on $200,000 per new station as established in Section 4.4.2 of Ref. B1. In addition to the ten new stations, this rate is also assumed to be applicable to the four to be modified existing stations (Dana, Jupiter, Carolina Beach and Nantucket). The one remaining station, Cape Race, was costed at $300,000 per year reflecting an improvement in operating procedures, relative to the current costs of $400,000/year. Total annual baseline recurring cost for CONUS off-shore coverage was established at $3.1M. It was assumed that the O&M costs noted in Ref. B1 includes spares replacement, staffing, charting and other relevant cost elements.

(4-K) Baseline annual Alaska off-shore recurring costs were estimated in a manner similar to the CONUS off-shore costs with the following exceptions: new and/or modified existing station recurring costs were increased from $200,000 per year to $300,000 per year. Existing station costs were increased from $300,000 per year to $375,000 per year. This resulted in an estimated $2.325M per year ($3 \times 0.375 + 4 \times 0.3$) for the recurring costs associated with the seven stations providing Alaskan off-shore coverage.

Column 5: Omega Baseline Costs

Since Omega is a quasi-world wide system and stations plus support are not located/implemented to provide specific area coverage all baseline costs are shown only in the area independent row, i.e., row "A", for the capital costs and row "G" for the recurring costs. All cost estimates were obtained through and/or approved by Ref. B2.

(5-A) Implementation of an Australia station was estimated at between $15M and $17M. $17M was selected so as to attempt to account for the costs associated with the decommissioning of the Trinidad station. It was assumed that the U.S. would absorb the Australian station implementation cost and Australia would be responsible for that station's recurring costs. An additional $0.5M was added to the baseline hardware costs to account for monitor equipment. Start up R&D, (single event) training and other costs, primarily related to the replacement of the Trinidad station by an Australian station, were estimated at $0.6M, $0.5M, and $0.5M, respectively.

(5-G) Unassigned recurring costs were built up from the following information:

STATION	ANNUAL U.S. O&M COSTS
Argentina	75,000*
Australia	0
Hawaii	300,000
Japan	0
La Reunion	75,000*
Liberia	500,000
North Dakota	300,000
Norway	293,000
Total:	1,543,100

"Headquarters" staff and charting were estimated at $0.75M and $0.15M, respectively. Long term, i.e., recurring, monitor related costs were estimated at $2.1M per year and was listed under "Other."

*U.S. supplies spare parts assumed to be 25% of nominal $0.3M annual costs. Host country supplies balance of O&M resource

Column 6: Differential Omega Baseline Costs

It is assumed that the differential portion of the Differential Omega system would be implemented totally by the FAA. As a result, the baseline (non-FAA related) costs associated with the Differential Omega system cover only the Omega portion of the total system and are, as a result, identical to the values listed in Column (5), Omega System Costs. Care must be taken not to count these costs more than once for those scenarios which include both the Omega and Differential Omega systems, even if they are applied to different operating areas.

Column 7: GPS Baseline Costs

The baseline costs of GPS, like Omega, were considered to be operating area independent; as a result rows B-F and H-L are not applicable.

(7-A) The costs noted in this category were taken directly from Table 9 of Ref. B3.

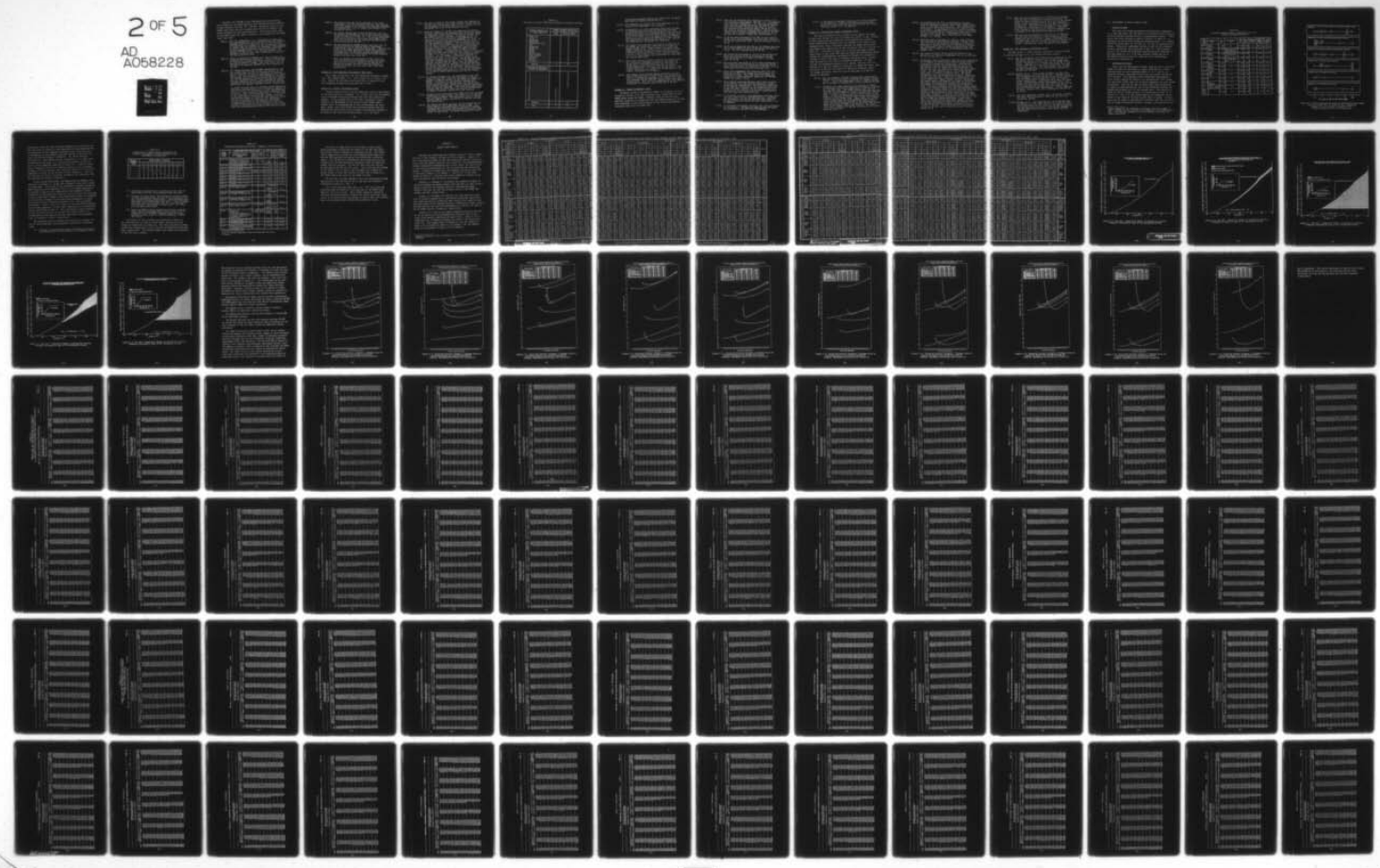
(7-G) The annual DOD incurred GPS related cost of $127M was obtained from Table 34 of Ref. B3 and covers O&M and spares replacement. In this case it is assumed that the staff charting and other (including DOD monitoring) was included in the $127M figure.

Columns 8&9: VOR/DME Upgraded and 2nd Generation Incremental (FAA) Costs

Since the VOR/DME system was deemed non-viable for obvious reasons in the CONUS off-shore, Alaska off-shore and Oceanic areas, cost data was not derived for rows D, E, F, J, K and L. The VOR/DME was assumed to be an FAA system; hence, all relevant costs would appear in this column (Columns 1&2, Non-FAA Costs being zeroed out). The implementation costs are associated with improving the existing VOR/DME system to either the upgraded or 2nd generation system both in the CONUS and Alaska and adding (10) additional sites in Alaska.

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Initially the VOR/DME system implementation and recurring costs needed for the RAANS analysis were developed based primarily on data obtained from Ref. B4. However, during the course of the RAANS study these earlier estimates were revised to reflect more recent testimony by FAA representatives. The actual values used in the RAANS study and shown in Table B.1 were defined by the RAANS Study Team (RST).

(8&9-A) The area independent, i.e., headquarter related one time implementation costs associated with the improved VOR/DME systems were typically set at less than the corresponding cost elements of the alternative systems, to reflect the availability of equipment, R&D knowledge, trained personnel and other factors associated with current VOR/DME system. For the same reasons, the upgraded" training costs were established at one-half the 2nd generation costs.

(8&9-B) CONUS 2nd generation VOR/DME costs were divided into hardware and training components. These costs, defined by the RST, were predicated on an evolution to the 2nd generation option 5 + RNAV. The total costs for conversion to an upgraded VOR/DME were also supplied by the RST.

(8&9-C) For Alaska coverage, the VOR/DME implementation cost was established at $20M for ten new stations at $2M per station plus the cost of improving 33 existing VOR's. The cost of station improvements in an Alaskan environment was estimated to be $150,000 per station for the 2nd generation system and $75,000 per station for the "upgraded" system. This resulted in Alaska implementation totals of $25M and $22.5M for the 2nd generation and upgraded VOR/DME systems, respectively.

It should be noted that the baseline second generation VOR Alaska implementation cost of $25M was reduced to $17M in each of the alternative system implementation scenarios. This reduction represents a decrease from 10 to 6 new VOR's in the Alaskan region. It is based on the anticipated foresight that would be used to minimize the number of new VOR's that would be installed if that system was scheduled for replacement. A similar adjustment to the upgraded VOR Alaska implementation costs was not necessary as all transitions to alternative systems examined in this study used the second generation VOR as the initial system.

(8&9-G) The annual recurring costs presented in the "Area Independent" row (G) including staffing, charting and other are common to all systems and represent estimates of "headquarters" cost to support any primary civil navigation system.

(8&9-H) The annual steady state recurring O&M costs for the 2nd Generation VOR/DME was set at $18.7M based on data listed in Table 2-4 of Ref. B5. The spares replacement annual cost of $1M as well as the total annual recurring cost of $32.5M for the upgraded VOR/DME system were established by the RST.

(8&9-I) The 2nd generation VOR/DME annual recurring costs of $1.5M and $0.04M for O&M and spares replacement, respectively, were established by the RST. Applying the ratio of the CONUS upgraded to CONUS 2nd generation recurring costs to the total Alaska 2nd generation recurring costs of $1.54M yielded the Alaska upgraded annual recurring cost of $2.6M.

When the Alaskan second generation VOR system was to be replaced by an alternative system, the annual O&M costs of $1.5M was reduced to $1.36M and the spares replacement cost of $0.04M was reduced to $0.036M to account for four fewer VOR's (see 8&9-C explanation).

Column 10: Self-Contained Incremental (FAA) Costs

By a study ground rule, the self-contained navigation systems, e.g., INS, Doppler Radar, etc., were assumed not to induce a FAA cost. Hence, the FAA annual recurring costs in support of the self-contained navigation system were set at zero.

Column 11: Loran-C Incremental Costs

Loran-C characteristics dictate additional station requirements as the coverage area is expanded. As a result there are incremental costs associated with each operating area with the exception of oceanic. It was assumed that in all cases (scenarios) Loran-C would not be implemented in the interior areas (CONUS and/or Alaska) prior to implementation in the corresponding off-shore area. Hence, costs associated with providing signals that are required for both interior and off-shore coverage were assumed to be borne by the first system application, i.e., off-shore.

(11-A) The costs listed in this block reflect the judgment of the RST and include such items as NAFEC flight testing and equipping 30 aircraft with Loran-C receivers at an estimated unit cost of $15,000 per aircraft.

(11-B) Based on Figure 2-7 of Ref. B1, there are 15 Loran-C stations (excluding the proposed mid-continental chain) incorporated in the current USCG plan to provide CONUS and CONUS off-shore coverage. According to Ref. B1, the 15 stations will have to be supplemented by an additional 16 stations (master dependent receivers) to provide redundant coverage needed to satisfy civil air navigation requirements. It was assumed that the cost of these additional stations will be absorbed by the FAA should Loran-C be designated as the primary navigation system for the CONUS and CONUS off-shore operating regions. The division of these stations between the CONUS and CONUS off-shore areas is presented in Table B.2; Figure 2-7 of Ref. B1 illustrates their location. For the CONUS, 7 additional stations at $6M per unit (Ref. B1, Section 4.4.2) results in an increment hardware cost of $42M. The $0.18M training cost was estimated by the RST. The "unassigned" cost category includes $7M for spares plus an additional $13.7M for dual monitor stations (of the $18.8M total for monitor stations in all operating areas, as established in Section 4.4.2 of Ref. B1). The balance of the $21.5M unassigned cost, i.e., $0.8M, was estimated by the RST to cover publications and initial flight checks.

(11-C) The Alaska hardware cost was predicated on one additional station whose cost was estimated at $8M (as opposed to $6M per station in the CONUS and CONUS off-shore). Training cost was minimal assuming most Alaska personnel were trained under the Alaska off-shore Loran-C program, which was to precede implementation of interior coverage. The $2.5M unassigned costs includes $1M in spares plus a $1.4M cost attributable to monitor purchase, installation and checkout.

(11-D) Hardware costs associated with CONUS off-shore coverage encompasses 9 new stations (see Table B.2) at $6M per unit, totaling $54M. The unassigned costs of $12.5M includes $9M in spares and $3.3M for monitor purchase and installation.

(11-E) The Alaska off-shore includes one new station on the North Slope at the Alaska unit price of $8M. The training cost of $0.1M reflects training of Alaskan personnel for off-shore and perhaps for interior operations if applicable. $1.5M was allocated for other

Table B.2

Division of Loran-C Stations by Region of Primary Coverage

STATIONS IDENTIFIED IN U.S. COAST GUARD PLAN	PRIMARY COVERAGE APPLICATION	
	CONUS	CONUS OFF-SHORE
Moses Lake		X
Fallen		X
Searchlight		X
Middletown		X
International Falls		X
Dana		X
Grangeville		X
Raymonville		X
Malone		X
Jupiter		X
Carolina Beach		X
Elmira (Seneca)		X
Nantuckett		X
Caribou		X
Cape Race		X
Subtotal	0	15
NEW STATIONS REQUIRED TO SUPPORT AIR NAVIGATION		
1		X
2		X
3		X
4		X
5		X
6		X
7		X
8		X
9		X
10	X	
11	X	
12	X	
13	X	
14	X	
15	X	
16	X	
Subtotal	7	9
TOTAL	7	24

costs which includes $1M for the initial set of spares and $0.4M for monitor installed cost.

(11-G) The components of (8&9-G) are also applicable to the Loran-C area independent cost category.

(11-H) Incremental, i.e., FAA, recurring costs were assumed to be associated only with the seven new stations required for civil air navigation (see 11-B); thus, at an estimated annual cost of $200,000 per station (Section 4.4.2 of Ref. B1), the total becomes $1.4M/year. Other recurring costs of $0.69M/year to cover monitoring O&M costs was determined by taking 5 per cent of the CONUS monitor installed cost ($13.7M).

(11-I) The annual recurring cost per station of $200,000 in the CONUS was increased to $250,000 to account for higher Alaska costs. Hence, based on a single new Loran-C station (see Section 11-C), $0.25M was established for Loran-C station related recurring costs. Five per cent of the $1.4M monitor station installed cost, i.e., $0.07M/year, was determined to cover monitor station O&M costs.

(11-J) Nine "new" Loran-C stations required to provide civil air navigation redundant coverage in the CONUS off-shore area at $200,000/unit/year was the basis for $1.8M annual recurring costs relative to Loran-C station operation. Five per cent of the monitor station's installed cost yielded the $0.18M shown in the "other" recurring cost category.

(11-K) The product of the Alaska annual recurring cost per unit of $250,000 and a single "new" unit required for civil air navigation coverage in the Alaska off-shore area produced the $0.25M/year figure shown under unassigned costs. This cost was supplemented by $0.02M/year to account for monitor station O&M (5% of $0.4M).

Column 12: Omega Incremental Costs

The Omega system is potentially viable as a primary civil air navigation system in all the operating areas established for the RAANS Study except the CONUS. However, lack of non-precision approach capability in Alaska may rule the Omega system out in that area depending on the interpretation of the system requirements developed under the VLF Study [B6].

(12-A) Since no new stations were required to satisfy civil air navigation requirements, the FAA, i.e., incremental, costs were not substantial. For the area independent costs the RST estimated $0.6M for FAA monitor facilities installation; $2.0M for R&D (same as Loran-C and one-half of Differential Omega), $0.5M for training (same as Loran-C's training cost), and $1.0M under "other" which includes equipping FAA aircraft (8) at $40,000 per aircraft, flight test, publication, etc.

(12-C) $1.5M has been allocated by the RST to cover initial flight tests and development of publication format for the Alaska operational area. RST set training costs at $0.2M.

(12-D) $3.5M was estimated by the RST as the funding necessary for initial CONUS off-shore flight tests and publications. RST set training costs at $0.4M.

(12-E) The activities described in (12-C) in the Alaska off-shore area require $0.5M as estimated by the RST. Training costs were set equal to Loran-C training costs of $0.1M.

(12-F) The activities described in (12-C) when implemented in the oceanic area of operations will require a $0.5M annual funding level, as estimated by the RST, with an additional $0.1M allocated for training costs.

(12-G) These area independent FAA incurred costs were estimated by the RST to be common for each primary air navigation system. Thus, the values for Omega are identical to those previously addressed for VOR/DME (8&9D) and Loran-C (11-D).

(12-I) Area related recurring charting costs were estimated at $0.05M/year for each primary navigation system-operating area combination. Staffing was established at $0.02M/year, predicted on the assumption that the Alaska off-shore staffing (12-K) would precede that required for the interior and would be applicable to both off-shore and interior duties.

(12-J) As described in (12-I), area dependent recurring charting costs were fixed at $0.05M/year/area. Staffing was estimated to be one and one-half that required for both Alaska and Alaska off-shore operations, i.e., $0.09M/year.

(12-K) As previously mentioned, charting costs were estimated at $0.05M/year. Staffing for Omega Alaska off-shore was estimated by the RST to be $0.04M/year.

(12-L) As previously mentioned, charting costs were estimated at $0.05M/year. Staffing recurring costs were estimated to be equivalent to the sum of Alaska and Alaska off-shore costs, i.e., $0.06M/year.

Column 13: Differential Omega Incremental Costs

The costs presented in this column are the sum of the Omega system costs (Column 12) plus the additional costs, if any, related to the installation and operation of the differential stations. These differential station costs were assumed to be solely a FAA responsibility; thus, differences between the Omega and Differential Omega costs appear only in the incremental FAA cost sections of Table B.1. Care must be taken not to include the Omega related costs twice in the event that both the Omega and Differential Omega systems are simultaneously designated as primary air navigation systems in either the same or different operating areas in which case the costs of 13-A and 13-G should be modified. If both systems are designated primary in (1) Alaska, then the costs of Section 13-C and 13-I should be adjusted; (2) CONUS off-shore, then the costs of Sections 13-D and 13-J should be adjusted; and/or (3) Alaska off-shore, then the costs of Sections 13-E and 13-K should be adjusted.

(13-A) Cost of hardware, R&D and training were estimated by the RST to be twice those estimated for Omega, Section (12-A). The $1.5M "unassigned" cost includes avionics for 8 aircraft at $60,000 per aircraft totaling $0.48M.

(13-C) Hardware costs were based on an estimated 12 Alaska differential stations at $140,000 per station resulting in a $1.68M total. The CONUS station unit cost of $100,000 was increased to $140,000 by applying the same ratio of Loran-C CONUS to Alaska station costs ($5M to $7M). Initial training costs were also scaled to the number of stations at $50,000 per station resulting in a $0.6M for the Alaska area. Those costs are substantially higher than the corresponding Loran-C cost because the differential portion of the Differential Omega system was assumed to be an exclusive FAA system deriving no support from other sources. The other costs were estimated by the RST to be twice the corresponding Omega cost.

(13-D) As estimated by the RST, 22 differential stations would be required to support Differential Omega operations in the CONUS off-shore area. The resulting hardware costs of $2.2M were based on a per station cost of $100,000. As mentioned in (13-C), initial training costs were estimated at $50,000 per station rate resulting in a total of $1.1M. "Unassigned" costs were assumed to be double those identified for the Omega system, i.e., $7.0M.

(13-E) Hardware costs of $0.56M were based on four differential stations at $140,000 per station. Initial training costs of $0.2M represent the product of four stations and a training cost rate of $50,000 per station. The "unassigned" cost of $1.0M was based on the RST ground rule of doubling the corresponding Omega "unassigned" cost.

(13-G) The values of $0.5M, $0.1M and $0.5M reflect a consistent set of FAA area independent costs, see Sections (8, 9, 11, and 12-G).

(13-I) Incremental (FAA) differential O&M costs were predicated on the number of differential stations being operated to provide coverage in a given area. O&M cost per differential station was established by the RST at $20,000 per year for CONUS off-shore operations and $40,000 per year for Alaska and Alaska off-shore operations. For this Section (13-I), the resulting O&M costs were (12 x $40K) $0.48M per year. The spares replacement costs were estimated by the RST to be $20,000 per year per differential station, independent of the operating area. With the 12 differential stations required to support Alaska interior operations, the annual spares replacement cost came to $0.24M/year. Recurring staff costs were proportioned according to the number of differential stations in an operating area. The total staffing for Differential Omega should tend to be slightly higher than the corresponding costs estimated for either Loran-C or GPS since the differential element of the Differential Omega system would be an exclusive FAA operation with no (staffing) assistance from other agencies. A staffing cost number of $5000/year/station and $7500/year/station was selected by the RST for CONUS and Alaska operations, respectively. Thus, the Alaska Differential Omega annual staffing costs were estimated at ($7500 x 12) $0.09M/year plus the $0.2M established for Omega staffing (12-I) or a total of $0.11M. Charting costs were estimated by the RST to be the same as those for Loran-C and GPS, namely $0.5M.

(13-J) O&M costs were estimated to be ($20,000 x 22) $0.44M/year for the 22 differential stations necessary for CONUS off-shore operations (see Section 13-I for explanation of this and other Section 13-J cost elements). Annual spares replacement costs ($20,000 x 22) came to $0.44M/year. Staffing costs ($5,000 x 22) plus Omega staffing was established at $0.20M/year. Charting costs assumed to be navigation system independent were estimated at $0.05M/year/area/navigation system.

(13-K) O&M costs were estimated at ($40,000 x 4) $0.16M/year for the four differential systems needed to support Alaska off-shore operations. Spare replacement and staffing costs were set at ($20,000 x 4) $0.08M/year and ($7,500 x 4 plus Omega's $0.04M) $0.07M/year, respectively. Charting was again estimated at $0.05M/year.

Column 14: GPS (Nominal) Incremental Costs

The GPS system is a DOD satellite navigation system expected to provide coverage in all five RAANS operating regions.

(14-A) The RST estimated that $5.0M would be required for FAA R&D should GPS be selected for a primary civil air navigation system in one or more of the RAANS Study areas. "Headquarters" training cost of $0.5M is compatible with the training costs established for each of the other systems. The "unassigned" cost category includes equipping 30 aircraft with GPS avionics at $66,000 per aircraft.

(14-B) through (14-F) Area related hardware and R&D costs were assumed to be zero for the FAA. Training costs were estimated at $1.5M, $0.2M, $0.4M, $0.1M, and $0.1M for the CONUS, Alaska, CONUS off-shore and Oceanic areas, respectively. Unassigned costs were set equal to the corresponding Loran-C unassigned costs, less Loran-C initial spares cost and covers the cost of the GPS system monitors, flight test and establishing initial charting format development. Oceanic unassigned costs, Section 14-F, were estimated by the RST to be $0.5M.

(14-G) The area independent annual costs for staff, charting and other were set equal to those of the other air navigation systems.

(14-H) through (14-L) The charting cost of $0.5M/year/area ($1.0M/year in the CONUS) follows the costs for this item established for the other air navigation systems. The staffing recurring costs reflects the judgment of the RST and directly parallels the Omega staffing requirement.

B.2 DEVELOPMENT OF RAANS AVIONICS COSTS

Current Systems

The costs for current navigation system avionics components, i.e., VOR, DME, RNAV, INS and other self-contained, were predicated on the prevailing purchase prices of representative models. These prices were then adjusted as shown in Column 4 of Table B.3 to eliminate the non-enroute navigation subsystem costs, i.e., marker beacon and glideslope, for the VOR (B), (C) and (D) representative models. These price adjustment factors as well as the estimated avionics population, were furnished by Ref. B7. The estimated price of the 20,000 and subsequent produced avionics component of the same grade (A, B, C or D) were derived through the use of the RAANS production base cost reduction factor methodology (described in Appendix A).

Alternative Systems

Since, for the alternative systems, there was not a sufficient number of models on the market to permit selection of a viable representative for each component grade (A, B, C, and D), an approach different from that utilized for the current system had to be devised. This approach first established representative costs (from a variety of sources) for representative low* (Grade (A)) and high* (Grade (D)) cost avionics components for each system alternative. Then the (B) and (C) grade costs were established by adding a predetermined per cent of the difference between the minimum and maximum costs to the minimum costs. The location of these (B) and (C) grade percents are illustrated in Part II of Figure B.1. Part I of that figure depicts the comparable distribution of the selected "current system" VOR's by grade. In that case, the (C) grade is substantially different than the location of the (C) grade "alternative system." However, the location of the

*These components are intended to represent the price range of units filling the low and high cost segments of the avionics market. They are not intended to be the minimum or maximum cost models available.

Table B.3

Estimated RAANS Avionics Component Costs for Current Navigation Systems

RAANS COMPONENT GRADE	REPRESENTATIVE MODEL	1977 PRICE	PRICE ADJUSTMENT FACTOR	RAANS 1977 PRICE	NO. OF ACTIVE UNITS	POPULATION ADJUSTMENT FACTOR	ESTIMATED NUMBER PRODUCED TO DATE	EST. PRICE OF 20,000 & SUBSEQUENT UNITS
VOR (A)	NARCO NAV-112	$ 1,495	1.0	$ 1,495	148,082	3.4	503,479	$ 1,495
VOR (B)	NARCO NAV-124	$ 2,240	$650 + (0.6) $1,590 (Elimination of Integral MB & GS)	$ 1,604	62,225	3.4	211,565	$ 1,604
VOR (C)	BENDIX RVA-33A	$ 4,740	0.70 (Elimination of Integral MB & GS)	$ 3,318	28,408	3.4	96,587	$ 3,318
VOR (D)	COLLINS VIR-30A	$ 5,599	0.70 (Elimination of Integral MB & GS)	$ 3,919	9,656	3.4	32,830	$ 3,919
DME (B)	NARCO DME-195	$ 3,695	1.0	$ 3,695	31,113	1.4	43,558	$ 3,695
DME (C)	BENDIX DME-2030	$ 3,950	1.0	$ 3,950	14,204	1.4	19,886	$ 3,947
DME (D)	COLLINS 860E-4	$ 10,000	1.0	$ 10,000	9,656	1.4	13,518	$ 9,422
RNAV (B)	KING KN-74	$ 2,295	1.0	$ 2,295	8,500	1.0	8,500	$ 2,015
RNAV (C)		$ 12,998	1.0	$ 12,998	250	1.0	250	$ 6,677
RNAV (D)	JET DAC-2000	$ 12,998	1.0	$ 12,998	250	1.0	250	$ 6,677
INS	DELCO / LITTON C-IVA / LTN-201	$110,000	1.0	$110,000	468	1.0	468	$62,160
OTHER SELF-CONTAINED		$ 25,000	1.0	$ 25,000	1,264	1.0	1,264	$16,430

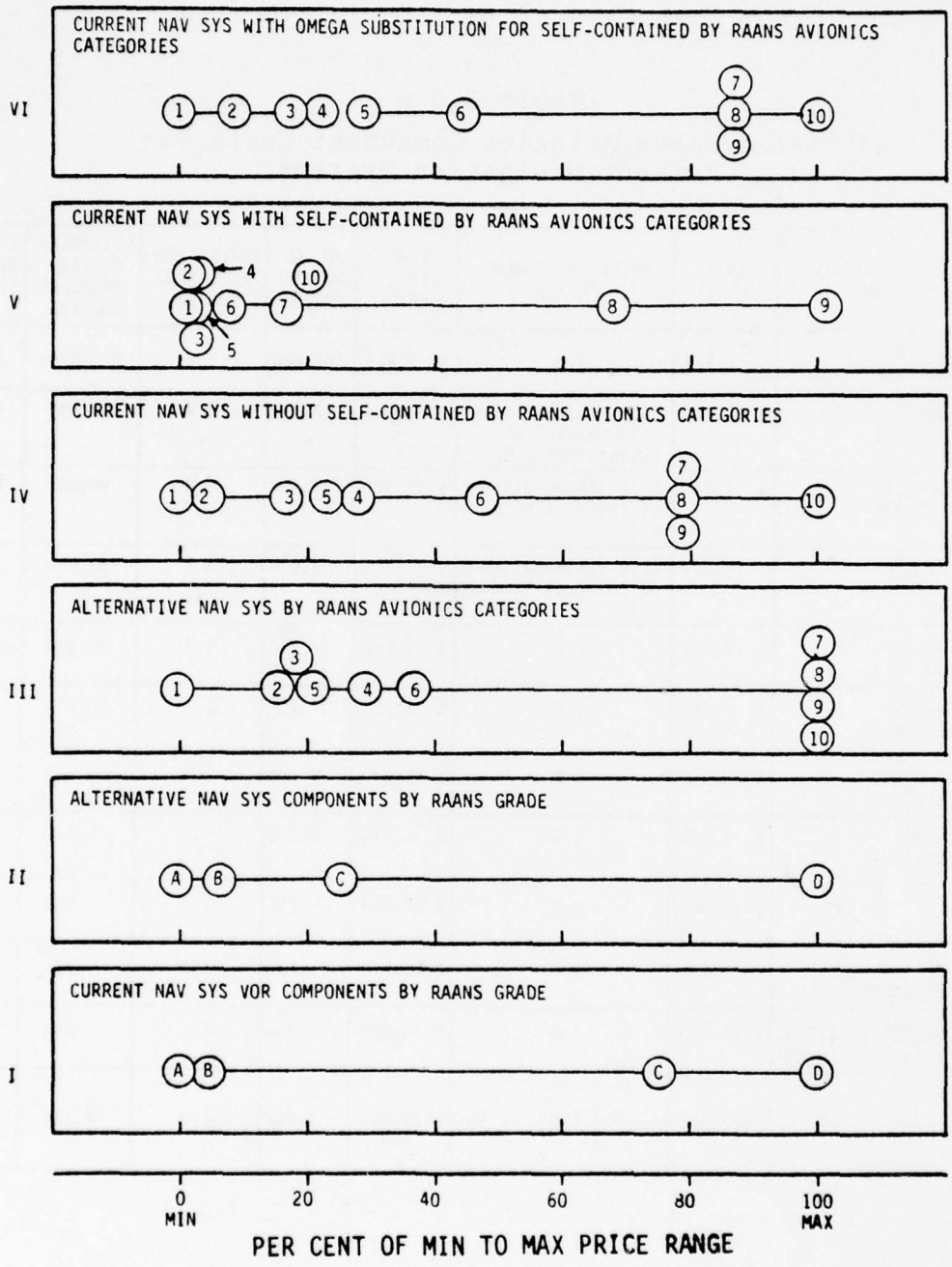


Figure B.1 Enroute Navigation Avionics Distribution Over Range from Min to Max Cost by RAANS Avionics Component Grade (A-D) and Avionics Category (1-10) (Common Production Base All Components)

alternative system (B) and (C) grade components on the min to max per cent scale of Figure B.1 was predicated not upon matching the corresponding current component locations such as the VOR, but in attempting to consistently duplicate the min to max cost divisions of the RAANS avionics categories. As can be inferred from Table B.4, only RAANS avionics categories 3, 4, 5 and 6 can be affected by the cost, i.e., min to max location, of the (B) and (C) grade components depicted in Figure B.1. Ideally, alternative components (B) and (C) would be located so as to produce category 3-6 min to max per cent locations (Figure B.1, Part III) comparable to those of the current systems (Figure B.1, Part IV). The selected (B) and (C) locations accomplish this objective with the exception of avionics category 6.

In the current VOR system, the composition of category 6 is identical to category 4, except that category 6 also has a single (C) grade RNAV. Since each of the alternative systems provide an RNAV capability at no additional cost, it was deemed appropriate to provide a relative cost reduction for the category 6 users. The option of increasing the Grade (C) min to max per cent location to force comparable category 6 locations would result in a mismatch of the avionics category 4 locations which encompasses a larger user group, and was therefore believed to be a less acceptable alternative. Parts V and VI of Figure B.1 are presented primarily for reference purposes, as their user populations are considerably smaller than those of Part IV. The clustering of many categories on the low end of the min to max per cent scale of Part V is attributable to the high cost of dual and triple INS components used in categories 8 and 9, respectively.

The procedure used to estimate the alternative systems' (A) and (D) grade component costs generally involved the following steps:

(1) Identify a representative model (preferably one that is in production but if not possible, use proposed model).

Table B.4

Composition of RAANS Avionics Categories By Alternative Navigation System Component Grade and Number of Components

AVIONICS COMPONENT GRADE	RAANS AVIONICS CATEGORIES									
	1	2	3	4	5	6	7	8	9	10
A	1	2	1							
B			1	1	2					
C				1		2				
D							2	2	2	2

(2) Determine the manufacturer's quoted price for each of these models and the corresponding production base.

(3) Estimate an "equivalent" (and perhaps fictitious) number of units produced to date for use in the production base cost reduction factor computations. These estimates were developed by the RAANS Study Team (RST). These estimates were made with the knowledge that the first purchase of civil avionics versions may in some cases, i.e., GPS, not take place until 1985.

(4) Using the RAANS avionics production base cost relationships, adjust the manufacturer's price (Step 2) to be consistent with the RAANS estimated number of units produced to date (Step 3), thereby producing a "RAANS 1977 price."

The results of this procedure are presented in Table B.5. The representative (A) and (D) grade models selected for each system are identified in column two. The third and fourth columns present the "manufacturers price" and the corresponding production base, respectively. The required RAANS study inputs are presented in the last three columns.

Table B.5

Alternative Navigation Systems' Component Cost Derivation

AVIONIC COMPONENT BY RAANS (GRADE)	COMPONENT GRADES A AND D COST DATA SOURCE			RAANS STUDY INPUT ESTIMATES		
	REPRESENTATIVE AVIONICS UNIT OR OTHER COST DATA REFERENCE	QUOTED PRICE OF NTH UNIT	NUMBER OF UNITS, N	1977 PRICE	NUMBER OF UNITS PRODUCED TO DATE	PRICE OF† 20,000TH AND SUBSEQUENT UNITS
Loran-C (A)	Reference "Evaluation of Loran-C for Domestic Air Navigation" (Basic Unit + 2 Waypoint System With Coordinate Conversion)	$ 2,000 + 700	100,000 1,000	$ 5,715 + 993 $ 6,708	100 100 100	$ 2,998
Loran-C (B)	Interpolation Between RAANS Grade (A) & (D) 1977 Price			$ 7,937	100	$ 3,547
Loran-C (C)	Interpolation Between RAANS Grade (A) & (D) 1977 Price			$11,405	100	$ 5,097
Loran-C (D)	Teledyne TDL 424	$25,000	100	$17,617	1,000	$11,173
Omega (A)	Set Equal to RAANS 1977 Loran-C (A) Price			$ 6,708	100	$ 2,998
Omega (B)	Set Equal to RAANS 1977 Loran-C (B) Price			$ 7,937	100	$ 3,547
Omega (C)	Set Equal to RAANS 1977 Loran-C (C) Price			$11,405	100	$ 5,097
Omega (D)	Set Equal to RAANS 1977 Loran-C (D) Price			$17,617	1,000	$11,173
Differential Omega (A)	Currently Available Low Cost ADF Plus Omega (A) Price	$ 750	100,000*	$ 750 + 6,708 $ 7,458	100,000 100	$ 3,748
Differential Omega (B)	Interpolation Between Diff. (H) & (D) Grades Plus Omega (B) Price			$ 766 + 7,937 $ 8,703	100,000 100	$ 4,313
Differential Omega (C)	Interpolation Between Diff. (H) & (D) Grades Plus Omega (C) Price			$ 814 + 11,405 $12,219		$ 5,911
Differential Omega (D)	One-Half Cost of Collins ADF-DF 206 Plus Omega (D) Price	$ 1,000	100,000	$ 1,000 + 17,617 $18,617	100,000 1,000	$12,173
GPS (A)	Magnavox Unit ..... Rockwell Unit ..... (Price Reflects Average of 1st to Nth Units - RAANS Price Based On Average of Magnavox and Rockwell Costs)	$ 5,000 $ 7,680	86,000 15,000	($13,161) ($15,501) $14,331	(50) (50) 50	$ 5,765
GPS (B)	Interpolation Between RAANS Grade (A) & (D) 1977 Price			$16,704	50	$ 6,719
GPS (C)	Interpolation Between RAANS Grade (A) & (D) 1977 Price			$25,462	50	$10,242
GPS (D)	Average of Loran-C and Omega Grade (D) to Grade (A) Ratios** Applied to GPS Grade A Value			$57,680	50	$23,201

*Predicated on ADF Production Base

**Loran-C as noted above, Omega based on Loran-C (A) and Bendix ONS-25 for Grade (D)

†1977 Dollars

The price of Omega units were set equal to their Loran-C grade equivalents reflecting the opinion of the RST that these two systems should ultimately be comparably priced. The differential Omega prices include the corresponding grade Omega unit plus an ADF equivalent to provide the differential correction update. The 100,000 unit differential unit production base was predicated on the ADF production experience since the same technology would be involved. The GPS (D) unit price was derived by ratioing up the GPS (A) unit price. This ratio was the average of the Loran-C (A) to Loran-C (D) and Omega (A) to Omega (D) prices where, in this case (unlike the unit used in Table B.5), the Bendix ONS-25 was used for the Omega (D) unit.

The (B) and (C) grade component costs were determined through application of the (B) and (C) min to max per cent locations displayed in Figure B.1, Part II.

All of the resulting input data, i.e., 1977 unit price and production base of Table B.5, were approved by the RAANS Study Team for use in this study. These values should be treated as the "best interim estimates" recognizing, indeed expecting, these values to be refined with the passage of time as the civil avionics units in each grade evolve toward full production status.

APPENDIX C

BACKUP STUDY RESULTS

The material comprising this appendix consists of four tables, one set of five figures, and one set of ten figures. Table C.1* lists the percent change in 1978-2005 cumulative present value user costs from the nominal baseline case values for each implementation scenario-navigation combination run in this study, for each of the 23 user groups distinguished by type of operation and operational region. A portion of these data (the nominal scenarios) were used to construct Figure 6.9 of Volume I. Table C.2*, in the same format as Table C.1, presents the actual cumulative present value costs incurred by each of the 23 user groups.

Figures C.1 through C.5 illustrate the cumulative number of avionics packages purchased between 1978 and 2005, by type of navigation system for the nominal baseline; Differential Omega; Loran-C; GPS plus low cost VOR avionics users in the CONUS and Alaska; and GPS, respectively.

Figures C.6 through C.15 identify the time sensitive variation in avionics package price considering technology improvement cost reduction factor, production base related cost reduction and inflation based on the nominal baseline, differential Omega, Loran-C, GPS and GPS plus low cost VOR implementation scenarios for each of the 10 RAANS avionics categories, respectively.

Table C.3* is the set of summary computer printouts for each of the navigation system-implementation scenarios run in this study using nominal conditions/characteristics. Table C.4* is a comparison set of summary printouts for each of the sensitivity cases run. The changes that correspond to the case numbers of Table C.4 are defined in Table 6.2 of Volume I (by run numbers which are equivalent to Table C.4 case numbers).

*Computer printout costs of Tables C.1-C.4 are in thousands of dollars.

Table C.1 Percent Change of Cumulative User and FAA Costs (After Tax

RUN NO.	OPERATING REGIONS	TYPE OF OPERATION: AIR CARRIER						AIR TAXI						
	CONUS	X	X	X	X			X	X	X				X
	ALASKA		X		X	X	TOTAL		X		X	X	TOTAL	
	OCEANIC			X	X		THIS						THIS	
	CONUS O.S.						TYPE OF			X			TYPE OF	
	AKA O.S.						OPERATION					X	OPERATION	
100	CASH	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
101	OUTLAY	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
102	BASELINE	00.00	00.00	56.83	24.35	00.00	12.53	00.00	00.00	0.92	00.00	0.24	0.03	00.00
200	CASH	00.00	132.66	3.46	8.87	34.32	10.96	00.00	183.91	-7.14	121.76	-40.91	2.24	00.00
202	OUTLAY	00.00	98.67	-2.48	0.95	3.12	6.30	00.00	179.84	-3.66	126.23	-38.82	2.42	00.00
205	DIFFER-	00.00	100.33	-1.81	1.63	5.22	6.64	00.00	164.77	-7.65	107.55	-36.12	1.95	00.00
204	ENTIAL	00.00	74.46	-6.24	-2.65	-2.23	3.60	00.00	151.12	-4.57	102.04	-31.10	1.92	00.00
206	OMEGA	00.00	82.99	-1.20	1.65	7.43	5.64	00.00	152.34	-4.25	103.69	-30.62	1.96	00.00
300		-11.69	-12.10	-6.02	-5.87	-10.17	-10.25	6.73	30.96	-59.32	70.92	-53.59	5.96	80.00
301		18.65	20.77	6.73	8.25	21.03	15.93	-20.06	25.87	-59.51	59.17	-50.48	2.56	6.79
302	CASH	-11.53	-12.02	-5.96	-5.82	-16.38	-10.30	-38.15	31.16	-58.01	66.76	-46.65	6.07	8.13
305	OUTLAY	-10.87	-10.59	-5.39	-5.27	-14.63	-9.55	-37.63	19.76	-61.14	52.22	-50.00	97.44	0 21
303	LORAN-C	-14.64	-18.63	-8.21	-9.09	-14.50	-13.33	-40.24	67.62	-39.71	106.26	-28.71	35.28	33.81
304		-16.38	-15.34	-9.02	-9.02	-15.65	-14.37	-40.95	22.00	-51.80	50.66	-44.26	0.19	1.66
306		-8.79	-8.54	-4.68	-4.28	-7.93	-7.70	-36.35	23.01	-51.54	51.89	-43.78	1.18	3.32
400		77.44	75.00	-10.91	-10.65	65.00	54.72	103.26	149.69	-23.81	216.04	-4.07	101.62	105.59
401		140.69	143.71	15.59	18.83	143.18	109.61	96.58	139.71	-26.73	201.41	-11.96	94.90	103.44
409	CASH	78.84	77.87	-9.75	-9.53	68.61	56.21	86.35	127.90	-29.94	188.01	-11.00	84.82	90.31
402	OUTLAY	51.06	45.70	-14.96	-16.56	53.00	34.02	149.05	208.76	0.56	281.89	20.33	147.15	143.71
403	GPS	46.65	51.82	-16.97	-13.98	50.03	31.21	80.15	120.77	-23.07	174.61	-9.57	78.86	81.60
410		62.39	65.89	- 7.96	-6.88	66.00	45.04	82.20	122.61	-22.65	176.98	-8.85	80.88	85.05
404		51.00	50.76	- 5.35	-6.86	56.41	36.83	55.77	56.62	-28.05	89.18	-21.53	34.64	40.04
413		77.44	75.00	-10.91	-10.65	65.00	54.72	55.77	37.88	-23.81	22.69	-2.87	52.89	60.32
405	CASH	140.69	143.71	15.59	18.83	143.18	109.61	52.52	35.44	-26.73	19.96	-10.77	49.64	61.60
411	OUTLAY	78.84	77.87	- 9.75	-9.53	68.61	56.21	44.64	30.35	-29.94	17.63	-9.81	42.02	50.61
406	GPS +	51.06	45.70	-14.96	-16.56	53.00	34.02	87.36	64.36	0.56	35.64	22.01	83.93	45.89
407	LOW COST	46.65	51.82	-16.97	-13.98	50.03	31.21	42.46	31.98	-23.07	17.03	-7.66	40.12	84.79
412	VOR	62.39	65.89	- 7.96	-6.88	66.00	45.04	44.03	32.79	-22.65	17.42	-7.66	41.63	48.91
100	PRESENT	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
101	VALUE	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
102	BASELINE	00.00	00.00	117.18	37.24	00.00	22.82	00.00	00.00	00.00	00.00	2.70	00.07	00.00
200	PRESENT	00.00	127.10	1.27	6.30	28.97	9.97	00.00	200.82	-5.63	137.94	-37.84	2.59	00.00
202	VALUE	00.00	84.66	1.26	3.51	11.87	6.35	00.00	159.02	-3.35	108.78	-26.13	2.08	00.00
205	DIFFER-	00.00	80.32	-1.28	1.56	06.14	5.50	00.00	152.46	-4.91	101.64	-27.03	2.10	00.00
204	ENTIAL	00.00	48.90	-0.41	1.27	05.42	3.47	00.00	106.56	-2.35	74.00	-18.92	1.41	00.00
206	OMEGA	00.00	48.67	-0.63	1.12	05.32	3.40	00.00	106.56	-2.35	74.00	-18.92	1.41	00.00
300		-0.81	-1.38	-1.03	-0.78	1.02	-0.84	4.80	25.41	-48.58	81.97	-51.35	4.54	6.0
301		21.89	25.14	9.14	10.98	21.80	19.26	12.90	34.43	-45.51	63.47	-36.94	12.07	15.1
302	PRESENT	-0.61	-1.23	-0.93	48.07	-3.99	1.82	5.11	26.23	-47.79	51.29	-39.64	4.38	6.3
305	VALUE	-4.00	-4.31	-2.37	-2.20	-8.39	-3.74	1.75	21.31	-49.00	45.90	-40.54	1.04	3.0
303	LORAN-C	10.32	7.84	4.92	3.81	8.70	8.80	17.25	36.07	-28.21	54.49	-22.52	16.62	17.4
304		-2.94	-2.89	-1.96	-1.42	-2.56	-2.68	2.32	16.39	-33.05	34.54	-28.83	1.84	3.1
306		-3.26	-3.00	-2.11	-1.51	-2.56	-2.93	2.32	16.39	-33.05	34.54	-28.83	1.84	3.1
400		81.76	77.09	-0.66	-0.44	67.96	62.03	84.15	126.23	-20.58	169.79	-8.11	82.58	86.1
401		129.30	132.83	20.52	24.26	122.31	104.39	99.44	142.63	-16.10	193.44	-3.60	97.69	103.1
409	PRESENT	74.66	70.59	-3.71	-3.51	58.85	55.86	77.59	117.21	-22.86	159.37	-10.81	76.07	80.1
402	VALUE	67.25	66.13	11.86	9.61	66.43	54.21	85.34	122.13	-4.63	161.24	4.50	84.03	85.1
403	GPS	39.03	43.25	-2.94	47.19	42.58	32.39	56.18	84.43	-14.17	117.10	-6.31	55.19	57.1
410		38.34	42.98	-3.24	-1.81	42.58	29.22	56.19	84.43	-14.17	117.10	-6.31	55.19	57.1
404		38.98	39.95	6.89	54.61	41.56	34.25	36.54	52.46	-7.55	73.30	-3.60	35.88	39.1
413		81.76	77.09	-0.66	-0.44	67.96	62.03	46.34	34.43	-20.58	18.15	-6.31	43.85	51.1
405	PRESENT	129.30	132.83	20.52	24.26	122.31	104.39	56.65	38.52	-16.10	22.48	-0.90	53.88	63.1
411	VALUE	74.66	70.59	-3.71	-3.51	58.85	55.86	41.92	31.15	-22.86	16.27	-8.11	39.54	46.1
406	GPS +	67.25	66.13	11.86	9.61	66.43	54.21	50.34	36.89	-4.63	19.91	7.21	48.16	52.1
407	LOW COST	39.03	43.25	-2.94	47.19	42.58	32.39	31.01	22.13	-14.17	12.18	-4.50	29.33	34.1
412	VOR	38.34	42.98	-3.24	-1.81	42.58	29.22	31.02	22.13	-14.17	12.18	-4.50	29.34	34.1

PRECEDING PAGE NOT FILMED

*RELATIVE TO BA

User and FAA Costs (After Tax Cash Outlay and Present Value) Through the Year 2005* — $000

	AIR TAXI				TYPE OF OPERATION: EXECUTIVE/BUSINESS								PERSONAL		
	X				X	X	X	X	X				X	X	X
		X	X	TOTAL		X			X	X	X	TOTAL		X	
				THIS				X				THIS			
	X			TYPE OF			X		X			TYPE OF			X
			X	OPERATION					X		X	OPERATION			
00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
00	0.92	00.00	0.24	0.03	00.00	00.00	0.93	30.90	0.59	00.00	-0.11	0.87	00.00	00.00	3.04
91	-7.14	121.76	-40.91	2.24	00.00	103.93	-7.91	3.14	-6.83	77.31	-43.19	1.51	00.00	189.61	-10.76
84	-3.66	126.23	-38.82	2.42	00.00	102.78	-4.42	-2.43	-2.57	81.61	-36.43	1.45	00.00	179.06	-7.82
77	-7.65	107.55	-36.12	1.95	00.00	94.43	-8.44	-1.79	-7.52	67.04	-39.60	1.19	00.00	170.73	-9.79
12	-4.57	102.04	-31.10	1.92	00.00	86.07	-5.21	-4.94	-3.91	64.92	-33.46	1.07	00.00	150.05	-6.65
34	-4.25	103.69	-30.62	1.96	00.00	87.05	-4.84	-1.19	-3.47	66.19	-33.26	1.20	00.00	150.16	-6.63
96	-59.32	70.92	-53.59	5.96	80.00	-17.82	-59.11	-6.30	-56.53	32.61	-56.28	7.14	39.66	40.36	-54.74
87	-59.51	59.17	-50.48	2.56	6.79	-20.81	-59.17	4.24	-56.39	24.95	-54.07	6.17	42.87	43.19	-52.75
16	-58.01	66.76	-46.65	6.07	8.13	-17.76	-57.74	-6.27	-54.65	30.25	-51.53	7.25	39.88	40.52	-53.41
76	-61.14	52.22	-50.00	97.44	0 21	-24.32	-60.93	-5.78	-58.22	19.18	-53.96	-0.43	33.44	34.14	-55.07
62	-39.71	106.26	-28.71	35.28	33.81	6.53	-39.87	-10.53	-36.73	62.89	-34.42	32.10	57.64	57.59	-38.63
00	-51.80	50.66	-44.26	0.19	1.66	-18.39	-51.75	-7.54	-49.41	20.60	-47.10	0.97	30.08	31.35	-45.23
01	-51.54	51.89	-43.78	1.18	3.32	-17.79	-51.47	-5.63	-49.11	21.53	-47.00	2.71	30.18	31.44	-45.22
69	-23.81	216.04	-4.07	101.62	105.59	60.53	-23.45	-11.85	-17.77	145.85	-13.41	101.36	156.80	157.38	-22.69
71	-26.73	201.41	-11.96	94.90	103.44	54.36	-26.24	9.98	-21.19	135.66	-18.27	99.74	162.59	162.49	-21.40
90	-29.94	188.01	-11.00	84.82	90.31	47.32	-29.67	-10.84	-24.80	124.53	-18.16	86.56	144.44	145.13	-25.89
76	0.56	281.89	20.33	147.15	143.71	98.36	0.31	-19.87	6.14	198.73	10.03	138.25	178.22	178.34	-6.86
77	-23.07	174.61	-9.57	78.86	81.60	48.30	-22.93	-13.64	-18.56	117.22	-14.26	78.23	125.32	128.09	-19.66
61	-22.65	176.98	-8.85	80.88	85.05	49.49	-22.39	-7.07	-17.92	119.00	-14.04	81.73	125.51	128.25	-19.61
62	-28.05	89.18	-21.53	34.64	40.04	15.64	-28.03	-5.63	-26.14	55.44	-26.40	38.17	92.55	93.96	-13.77
88	-23.81	22.69	-2.87	52.89	60.32	42.39	-24.40	11.85	-17.23	48.17	-12.46	57.24	34.46	35.04	-22.29
44	-26.73	19.96	-10.77	49.64	61.60	37.54	-26.42	9.98	-20.64	44.22	-17.21	58.94	36.67	36.87	-21.00
35	-29.94	17.63	-9.81	42.02	50.61	31.29	-29.62	-10.84	-24.26	38.61	-17.11	47.85	30.60	30.81	-25.50
36	0.56	35.64	22.01	83.93	45.89	75.10	0.38	-19.87	6.14	74.00	11.19	80.85	43.65	44.59	-6.41
98	-23.07	17.03	-7.66	40.12	84.79	33.59	-22.87	-13.64	-18.02	38.13	-13.09	43.39	27.41	28.25	-19.21
79	-22.65	17.42	-7.66	41.63	48.91	34.64	-22.33	-7.07	-17.38	38.90	-12.78	46.44	27.49	28.32	-19.18
00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
00	00.00	00.00	2.70	00.07	00.00	00.00	2.46	56.64	2.29	00.00	00.00	1.70	00.00	00.00	7.67
82	-5.63	137.94	-37.84	2.59	00.00	106.56	-6.39	0.85	-5.33	92.07	-40.50	1.62	00.00	183.15	-8.49
02	-3.35	108.78	-26.13	2.08	00.00	86.08	-5.46	-0.40	-2.67	72.91	-28.51	1.27	00.00	138.92	-5.57
46	-4.91	101.64	-27.03	2.10	00.00	82.64	-5.46	-1.21	-4.57	67.11	-29.34	1.14	00.00	134.80	-6.48
56	-2.35	74.00	-18.92	1.41	00.00	59.64	-2.69	-0.66	-1.71	49.15	-20.25	0.85	00.00	94.87	-3.52
56	-2.35	74.00	-18.92	1.41	00.00	59.71	-2.69	-0.62	-1.71	49.15	-20.25	0.86	00.00	94.60	-3.55
41	-48.58	81.97	-51.35	4.54	6.03	-14.84	-48.52	-2.42	-47.62	44.05	-54.55	5.62	28.62	29.03	-41.19
43	-45.51	63.47	-36.94	12.07	15.10	-10.27	-45.36	4.67	-42.48	32.47	-39.67	14.29	40.19	40.38	-37.17
23	-47.79	51.29	-39.64	4.38	6.33	-14.71	-47.60	-2.36	-45.14	23.49	-42.15	5.65	29.01	29.40	-39.75
31	-49.00	45.90	-40.54	1.04	3.09	-17.36	-48.83	-13.11	-46.48	19.18	-42.98	2.50	26.09	26.28	-40.50
07	-28.21	54.49	-22.52	16.62	17.49	-0.07	-28.40	0.62	-26.48	33.10	-25.62	16.65	32.50	33.06	-23.33
39	-33.05	34.54	-28.83	1.84	3.18	-10.67	-33.21	-1.74	-31.43	15.20	-30.58	2.76	18.64	19.69	-26.57
38	-33.05	34.54	-28.83	1.84	3.18	-10.67	-33.21	-1.73	-31.43	15.20	-30.58	2.76	18.40	19.51	-26.64
23	-20.58	169.79	-8.11	82.58	86.45	50.83	-20.35	-4.29	-16.38	117.52	-13.64	82.93	115.31	115.57	-17.48
63	-16.10	193.44	-3.60	97.69	103.75	59.71	-15.93	10.37	-11.24	134.90	-8.26	99.98	136.82	136.63	-12.48
21	-22.86	159.37	-10.81	76.07	80.17	45.46	-22.70	-5.85	-19.05	109.24	-15.29	76.81	109.71	109.62	-18.93
13	-4.63	161.24	4.50	84.03	85.65	57.32	-4.69	2.71	-1.52	115.72	00.00	82.55	102.54	104.40	-5.00
43	-14.17	117.10	-6.31	55.19	57.85	36.18	-14.08	-2.15	-11.43	81.19	-9.50	55.55	75.91	78.85	-11.32
43	-14.17	117.10	-6.31	55.19	57.86	36.18	-14.08	-2.12	-11.43	81.19	-9.50	55.56	75.46	78.48	-11.38
46	-7.55	73.30	-3.60	35.88	39.07	23.72	-21.51	6.03	-5.72	51.32	-4.96	37.71	53.23	55.04	-3.77
43	-20.58	18.15	-6.31	43.85	51.15	36.25	-20.24	-4.29	-15.24	39.44	-11.16	48.58	26.14	25.92	-16.82
52	-16.10	22.48	-0.90	53.88	63.62	43.27	-15.81	10.37	-9.91	46.92	-5.79	60.94	32.95	33.33	-11.78
15	-22.86	16.27	-8.11	39.54	46.90	31.68	-22.59	-5.85	-17.71	35.67	-12.81	44.43	24.32	23.81	-18.27
89	-4.63	19.91	7.21	48.16	52.86	43.80	-4.58	2.71	-0.76	42.83	1.65	45.75	25.74	26.37	-4.53
13	-14.17	12.18	-4.50	29.33	34.45	26.18	-14.01	-2.15	-10.67	27.09	-7.85	50.63	17.31	17.95	-10.81
13	-14.17	12.18	-4.50	29.34	34.46	26.18	-14.01	-2.12	-10.67	27.09	-7.85	32.76	17.13	17.86	-10.94

*RELATIVE TO BASELINE SECOND GENERATION VOR/OMEGA SELF CONTAINED NO TRANSITION CASE (RUN 100)

sent Value) Through the Year 2005* — $000

TYPE OF OPERATION											
SS				PERSONAL/OTHER							
X				X	X	X	X				
X	X	X	TOTAL		X			X	X	TOTAL	FAA COST
			THIS				X			THIS	
X			TYPE OF			X				TYPE OF	
X		X	OPERATION						X	OPERATION	
00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	45.20
0.59	00.00	-0.11	0.87	00.00	00.00	3.04	4.89	00.00	8.06	0.05	-00.10
-6.83	77.31	-43.19	1.51	00.00	189.61	-10.76	0.85	103.85	-38.10	3.75	-00.29
-2.57	81.61	-36.43	1.45	00.00	179.06	-7.82	1.20	100.06	-32.97	3.60	0.30
-7.52	67.04	-39.60	1.19	00.00	170.73	-9.79	-1.60	92.37	-32.97	3.32	1.46
-3.91	64.92	-33.46	1.07	00.00	150.05	-6.65	-1.34	83.59	-27.47	3.01	1.22
-3.47	66.19	-33.26	1.20	00.00	150.16	-6.63	-1.01	83.86	-27.47	3.02	2.85
-56.53	32.61	-56.28	7.14	39.66	40.36	-54.74	-5.39	56.94	-52.38	39.29	-23.20
-56.39	24.95	-54.07	6.17	42.87	43.19	-52.75	1.20	54.44	-45.79	42.32	-35.97
-54.65	30.25	-51.53	7.25	39.88	40.52	-53.41	-5.36	49.69	-46.52	39.27	-22.67
-58.22	19.18	-53.96	-0.43	33.44	34.14	-55.07	-5.10	43.59	-46.52	32.92	-4.01
-36.73	62.89	-34.42	32.10	57.64	57.59	-38.63	-4.96	63.81	-35.90	56.78	-20.88
-49.41	20.60	-47.10	0.97	30.08	31.35	-45.23	-3.78	39.92	-40.66	29.67	- 2.22
-49.11	21.53	-47.00	2.71	30.18	31.44	-45.22	-3.54	40.11	-40.66	29.77	23.94
-17.77	145.85	-13.41	101.36	156.80	157.38	-22.69	-10.33	180.50	-10.99	155.28	-46.62
-21.19	135.66	-18.27	99.74	162.59	162.49	-21.40	3.26	189.94	-9.52	161.20	-60.64
-24.80	124.53	-18.16	86.56	144.44	145.13	-25.89	-9.78	168.77	-10.99	143.09	-26.96
6.14	198.73	10.03	138.25	178.22	178.34	-6.86	-8.62	195.72	0.73	176.33	-46.53
-18.56	117.22	-14.26	78.23	125.32	128.09	-19.66	-6.10	149.85	-8.42	124.29	-26.87
-17.92	119.00	-14.04	81.73	125.51	128.25	-19.61	-5.57	150.24	-8.42	124.49	0.71
-26.14	55.44	-26.40	38.17	92.55	93.96	-13.77	8.66	116.64	-6.23	92.07	-26.74
-17.23	48.17	-12.46	57.24	34.46	35.04	-22.29	-10.33	28.88	-9.89	33.61	4.06
-20.64	44.22	-17.21	58.94	36.67	36.87	-21.00	3.26	34.11	-8.06	35.98	3.20
-24.26	38.61	-17.11	47.85	30.60	30.81	-25.50	-9.78	27.47	-9.89	29.86	5.26
6.14	74.00	11.19	80.85	43.65	44.59	-6.41	-8.62	30.25	3.66	42.55	4.15
-18.02	38.13	-13.09	43.39	27.41	28.25	-19.21	-6.10	25.10	-5.86	26.81	5.35
-17.38	38.90	-12.78	46.44	27.49	28.32	-19.18	-5.57	25.35	-5.86	26.90	7.03
00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	23.12
2.29	00.00	00.00	1.70	00.00	00.00	7.67	6.05	00.00	22.86	0.09	- 0.31
-5.33	92.07	-40.50	1.62	00.00	183.15	-8.49	0.37	7.58	-32.86	3.69	0.81
-2.67	72.91	-28.51	1.27	00.00	138.92	-5.57	-0.20	83.37	-22.86	2.85	0.90
-4.57	67.11	-29.34	1.14	00.00	134.80	-6.48	-1.04	79.12	-22.86	20.70	1.50
-1.71	49.15	-20.25	0.85	00.00	94.87	-3.52	0.10	56.81	-15.71	1.95	0.69
-1.71	49.15	-20.25	0.86	00.00	94.60	-3.55	-0.50	56.24	-15.71	1.93	1.21
-47.62	44.05	-54.55	5.62	28.62	29.03	-41.19	-1.91	62.83	-45.71	28.99	14.54
-42.48	32.47	-39.67	14.29	40.19	40.38	-37.17	3.49	50.30	-31.43	39.73	1.50
-45.14	23.49	-42.15	5.65	29.01	29.40	-39.75	-1.88	38.34	-34.29	28.62	12.53
-46.48	19.18	-42.98	2.50	26.09	26.28	-40.50	-2.59	35.05	-34.29	25.72	22.14
-26.48	33.10	-25.62	16.65	32.50	33.06	-23.33	1.55	40.15	-22.86	32.15	6.38
-31.43	15.20	-30.58	2.76	18.64	19.69	-26.57	-0.81	26.19	-25.71	18.43	15.99
-31.43	15.20	-30.58	2.76	18.40	19.51	-26.64	-1.34	25.74	-25.71	18.19	24.35
-16.38	117.52	-13.64	82.93	115.31	115.57	-17.48	-3.46	139.29	-10.00	114.36	-13.83
-11.24	134.90	-8.26	99.98	136.82	136.63	-12.48	7.73	162.56	-2.86	135.74	-25.46
-19.05	109.24	-15.29	76.81	109.71	109.62	-18.93	-4.94	132.91	-10.00	108.79	-3.71
-1.52	115.72	00.00	82.55	102.54	104.40	-5.00	4.40	123.48	-1.43	101.81	-15.48
-11.43	81.19	-9.50	55.55	75.91	78.85	-11.32	-0.40	96.48	-5.71	75.45	-5.36
-11.43	81.19	-9.50	55.56	75.46	78.48	-11.38	-1.52	95.59	-5.71	74.98	3.46
-5.72	51.32	-4.96	37.71	53.23	55.04	-3.77	7.73	69.55	00.00	53.04	-6.79
-15.24	39.44	-11.16	48.58	26.14	25.92	-16.82	-3.46	24.55	-7.14	25.60	5.48
-9.91	46.92	-5.79	60.94	32.95	33.33	-11.78	7.73	30.92	-1.43	32.41	4.77
-17.71	35.67	-12.81	44.43	24.32	23.81	-18.27	-4.94	23.15	-7.14	23.80	6.09
-0.76	42.83	1.65	45.75	25.74	26.37	-4.53	4.40	23.21	1.43	25.31	3.83
-10.67	27.09	-7.85	50.63	17.31	17.95	-10.81	-0.40	17.82	-2.86	17.02	4.44
-10.67	27.09	-7.85	32.76	17.13	17.86	-10.94	-1.52	17.26	-2.86	16.82	4.98

EGA SELF CONTAINED NO TRANSITION CASE (RUN 100)

3

Table C.2 Cumulative User and FAA Costs

RUN NO.	OPERATING REGIONS	TYPE OF OPERATION: AIR CARRIER						AIR TAXI						
	CONUS	X	X	X	X			X	X	X				X
	ALASKA		X		X	X	TOTAL		X		X	X	TOTAL	
	OCEANIC			X	X		THIS						THIS	
	CONUS O.S.						TYPE OF			X			TYPE OF	
	AKA O.S.						OPERATION					X	OPERATION	
100	CASH	84761.	8724.	25415.	7138.	3138.	129176.	187330.	491.	5334.	3336.	418.	196909.	1206500.
101	OUTLAY	84761.	8724.	25415.	7138.	3138.	129176.	187330.	491.	5334.	3336.	418.	196909.	1206500.
102	BASELINE	84761.	8724.	24858.	8876.	3138.	145357.	187330.	491.	5383.	3336.	419.	196959.	1206500.
200	CASH	84762.	20297.	26295.	7771.	4215.	143340.	187334.	1396.	4953.	7398.	247.	201326.	1203324.
202	OUTLAY	84761.	17552.	24784.	7206.	3236.	137319.	187334.	1378.	5139.	7547.	285.	201079.	1203319.
205	DIFFER-	84761.	17477.	24456.	7254.	3302.	137750.	187334.	1300.	4926.	6924.	267.	200751.	1203319.
204	ENTIAL	84761.	15220.	23830.	6949.	3068.	133828.	187333.	1233.	5090.	6740.	286.	200884.	1203317.
206	OMEGA	84761.	15964.	25110.	7256.	3371.	136462.	187333.	1239.	5108.	6795.	290.	200765.	1203317.
300		74849.	7008.	23886.	6719.	2819.	115941.	199940.	643.	2170.	5702.	194.	208649.	1299615.
301		100500.	10530.	27126.	7727.	3798.	149753.	193655.	618.	2160.	5310.	207.	201950.	1284984.
302	CASH	74943.	7670.	23899.	6723.	2624.	115865.	200198.	644.	2240.	5563.	223.	208868.	1301151.
305	OUTLAY	75551.	7800.	24045.	6702.	2679.	116837.	183920.	588.	2073.	5078.	209.	191874.	1205866.
303	LORAN-C	72350.	7049.	23329.	6489.	2083.	111956.	255158.	823.	3210.	6881.	298.	266376.	1610180.
304		70875.	7386.	23123.	6588.	2647.	110619.	188861.	599.	2571.	5026.	233.	197290.	1222578.
306		77308.	7979.	24226.	6853.	2889.	119235.	190801.	604.	2585.	5067.	235.	199292.	1243309.
400		150397.	15207.	22641.	6378.	5178.	199801.	380771.	1266.	4064.	10543.	401.	397005.	2473900.
401		204011.	21201.	29379.	8482.	7031.	270764.	388272.	1177.	3908.	10055.	368.	383780.	2447997.
404	CASH	151584.	15517.	22936.	6458.	5291.	201791.	349084.	1119.	3737.	9608.	372.	363920.	2290056.
402	OUTLAY	128040.	12711.	21013.	5956.	4801.	173121.	466544.	1516.	5364.	12740.	503.	486667.	2990056.
403	GPS	124301.	13245.	21102.	6140.	4708.	169496.	337471.	1084.	4098.	9101.	378.	352192.	2952031.
410		137641.	14473.	23391.	6647.	5209.	187361.	341522.	1093.	4126.	9240.	381.	356102.	2105222.
404		127965.	13152.	24054.	6648.	4908.	176747.	253072.	769.	3036.	6311.	328.	265116.	2227116.
413		150397.	15207.	22641.	6378.	5178.	199801.	291400.	877.	4064.	4093.	406.	301046.	1685085.
405	CASH	204011.	21201.	29379.	8482.	7031.	270764.	285701.	865.	3908.	4002.	373.	294849.	1469194.
411	OUTLAY	151584.	15517.	22936.	6458.	5291.	201791.	270954.	840.	3737.	3924.	377.	279032.	1444532.
406	GPS +	128040.	12711.	21013.	5956.	4801.	173121.	350963.	807.	5364.	4525.	510.	362169.	1812295.
407	LOW COST	124301.	13245.	21102.	6140.	4708.	169496.	266869.	648.	4098.	3904.	386.	275905.	2223536.
412	VOR	137641.	14473.	23391.	6647.	5209.	187361.	269807.	652.	4126.	3917.	388.	278890.	1755499.
														1741827.
100	PRESENT	25751.	2601.	6780.	2049.	977.	38158.	47862.	122.	1404.	854.	111.	50353.	310253.
101	VALUE	25751.	2601.	6780.	2049.	977.	38158.	47862.	122.	1404.	854.	111.	50353.	310253.
102	BASELINE	25751.	2601.	14725.	2412.	977.	46866.	47862.	122.	1437.	854.	114.	50389.	310253.
200	PRESENT	25752.	5907.	6866.	2178.	1260.	41963.	47862.	307.	1325.	2032.	69.	51655.	310258.
202	VALUE	25751.	4803.	6413.	2121.	1093.	40581.	47862.	316.	1357.	1783.	82.	51400.	310255.
205	DIFFER-	25751.	4694.	6693.	2081.	1037.	40256.	47862.	308.	1335.	1722.	81.	51308.	310255.
204	ENTIAL	25751.	3873.	6752.	2075.	1030.	39481.	47862.	252.	1371.	1486.	90.	51061.	310254.
206	OMEGA	25751.	3867.	6737.	2072.	1029.	39456.	47862.	252.	1371.	1486.	90.	51061.	310254.
300		25543.	2505.	6710.	2033.	987.	37838.	50158.	153.	722.	1554.	54.	52641.	328974.
301		31586.	3255.	7400.	2274.	1190.	45507.	54037.	164.	765.	1396.	70.	56432.	357104.
302	PRESENT	25543.	2569.	6717.	3034.	938.	38851.	50510.	154.	733.	1292.	67.	52556.	329880.
305	VALUE	24723.	2489.	6614.	2004.	895.	36730.	48099.	148.	716.	1246.	66.	50875.	319843.
303	LORAN-C	28406.	2905.	7114.	2127.	1062.	41516.	56114.	166.	1008.	1345.	86.	58724.	364510.
304		24994.	2526.	6647.	2020.	952.	37139.	48971.	142.	940.	1149.	79.	51281.	320113.
306		24911.	2523.	6637.	2018.	952.	37041.	48972.	142.	940.	1149.	79.	51282.	320131.
400		48000.	4830.	6735.	2040.	1641.	61828.	88138.	276.	1115.	2304.	102.	91935.	578479.
401		59040.	6056.	8171.	2546.	2172.	77991.	95454.	296.	1178.	2506.	107.	99541.	632132.
404	PRESENT	44977.	4437.	6529.	1977.	1552.	59472.	84496.	265.	1085.	2315.	99.	88658.	558977.
402	VALUE	43068.	4321.	7584.	2246.	1626.	58845.	88700.	271.	1339.	2231.	116.	92005.	575988.
403	GPS	35601.	3726.	6581.	2016.	1394.	50518.	74755.	225.	1205.	1854.	104.	78141.	489730.
410		35025.	3719.	6560.	2012.	1393.	49309.	74755.	225.	1205.	1854.	104.	78143.	489770.
404		35790.	3840.	7247.	3168.	1383.	51228.	65350.	196.	1298.	1480.	107.	68421.	431469.
413		48000.	4830.	6735.	2040.	1641.	61828.	70043.	164.	1115.	1009.	104.	72435.	468940.
405	PRESENT	59040.	6056.	8171.	2546.	2172.	77991.	74978.	169.	1178.	1046.	110.	77481.	507629.
411	VALUE	44977.	4437.	6529.	1977.	1552.	59472.	67920.	160.	1085.	993.	102.	70264.	455755.
406	GPS +	43068.	4321.	7584.	2246.	1626.	58845.	71950.	167.	1339.	1024.	119.	74005.	474251.
407	LOW COST	35801.	3726.	6581.	2016.	1394.	49518.	62706.	149.	1205.	958.	106.	65124.	417122.
412	VOR	35025.	3719.	6560.	2012.	1393.	49309.	62706.	149.	1205.	958.	106.	65126.	417160.

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				X		X	OPERATION				
1204500.	6057.	9948.	35459.	2020.	17110.	947.	1274827.	1756207.	4418.	12414.	11680.
1203500.	6057.	9948.	35459.	2020.	17110.	947.	1274827.	1756207.	4418.	12414.	11680.
1203500.	6057.	10041.	48417.	2032.	17110.	945.	1285868.	1756207.	4418.	12792.	12251.
1203324.	12511.	9161.	36573.	1882.	30337.	538.	1294126.	1756210.	12795.	11079.	11779.
1203319.	12242.	9508.	34596.	1968.	31074.	602.	1293309.	1756212.	12529.	11443.	11449.
1203319.	11738.	9108.	34823.	1868.	28560.	572.	1290008.	1756212.	11961.	11194.	11493.
1203317.	11253.	9030.	33707.	1941.	28217.	630.	1288475.	1756211.	11047.	11566.	11524.
1203317.	11292.	9067.	35036.	1950.	28435.	632.	1290129.	1756211.	11052.	11591.	11562.
1299615.	4901.	4068.	33226.	876.	22690.	414.	1365852.	2452775.	6201.	5618.	11050.
1284984.	4701.	4052.	36961.	881.	21379.	435.	1353483.	2509060.	6326.	5666.	11420.
1301151.	4905.	4204.	33257.	916.	22285.	459.	1367217.	2435502.	6208.	5784.	11054.
1205866.	4569.	3847.	33408.	844.	20392.	436.	1209404.	2343419.	5926.	5578.	11084.
1610180.	6451.	5382.	31725.	1278.	27871.	621.	1684068.	2768437.	6902.	7019.	11101.
1222578.	4927.	4800.	32765.	1022.	20635.	501.	1287248.	2284443.	5803.	5799.	11238.
1243309.	4903.	4828.	33906.	1028.	20793.	502.	1309329.	2286181.	5807.	6801.	11267.
2473900.	9641.	7015.	31257.	1901.	42005.	820.	2567009.	4510001.	11371.	9548.	10474.
2447997.	9319.	7338.	38999.	1592.	40321.	774.	2546340.	4011596.	11547.	9758.	12061.
2290056.	8894.	6946.	31617.	1519.	38417.	775.	2378274.	4242898.	10830.	9200.	10538.
2932031.	11475.	9479.	28416.	2144.	51113.	1042.	3037300.	4886078.	12297.	11563.	10673.
2105222.	8453.	7057.	30622.	1045.	37167.	812.	2272088.	3957045.	10077.	9474.	10968.
2227116.	9025.	7721.	32952.	1658.	37472.	814.	2316758.	3960425.	10084.	9674.	11029.
1685085.	6481.	7160.	33461.	1442.	26596.	697.	1761472.	3381493.	8563.	10705.	12692.
1929194.	8546.	7620.	31257.	1672.	25352.	829.	2004520.	2301446.	5900.	9647.	10474.
1944532.	8503.	7343.	38999.	1603.	24676.	784.	2026240.	2400230.	6047.	9807.	12061.
1812295.	7926.	7001.	31617.	1530.	23716.	785.	1884870.	2293686.	5774.	9249.	10538.
2223536.	10571.	9986.	28416.	2155.	29771.	1053.	2305490.	2522825.	6388.	11018.	10673.
1755499.	8065.	7073.	30628.	1656.	23034.	823.	1827978.	2237651.	5666.	10029.	10968.
1791827.	8128.	7727.	32952.	1669.	23765.	826.	1866894.	2239042.	5869.	10033.	11029.
310253.	1509.	2599.	9715.	525.	4275.	242.	329118.	442135.	1042.	3180.	2977.
310253.	1509.	2599.	9715.	525.	4275.	242.	329118.	442135.	1042.	3180.	2977.
310253.	1509.	2663.	15218.	537.	4275.	242.	334697.	442135.	1042.	3424.	3157.
310258.	3117.	2433.	9798.	497.	8211.	144.	334458.	442137.	5042.	2910.	2986.
310255.	2808.	2498.	9682.	511.	7392.	173.	333319.	442135.	2804.	3005.	2971.
310255.	2756.	2457.	9597.	501.	7144.	171.	332881.	442135.	2564.	2974.	2946.
310254.	2409.	2529.	9651.	516.	6376.	193.	331928.	442135.	2128.	3066.	2980.
310254.	2410.	2529.	9655.	516.	6376.	193.	331933.	442135.	2125.	3067.	2982.
328974.	1245.	1338.	9480.	275.	6158.	110.	347620.	568862.	1409.	1870.	2920.
357104.	1554.	1420.	10109.	302.	5663.	146.	376158.	619334.	1533.	1998.	3081.
329880.	1247.	1362.	9486.	286.	5279.	140.	347728.	570388.	1413.	1916.	2921.
319843.	1247.	1330.	9413.	281.	5095.	138.	337347.	557490.	1370.	1892.	2900.
304510.	1504.	1861.	4775.	386.	5090.	180.	383910.	585819.	1453.	2438.	3023.
320113.	1348.	1736.	9546.	360.	4925.	168.	338196.	524532.	1307.	2335.	2953.
320131.	1348.	1736.	9547.	360.	4925.	168.	338215.	523504.	1305.	2333.	2937.
578479.	2276.	2070.	9298.	439.	9299.	209.	602070.	951974.	2354.	2624.	2874.
632132.	2410.	2185.	10722.	466.	10042.	222.	658179.	1047046.	2584.	2783.	3207.
558977.	2195.	2009.	9147.	425.	8945.	205.	581903.	927185.	2269.	2578.	2830.
575998.	2374.	2077.	9978.	517.	9222.	242.	600798.	895500.	2252.	3021.	3108.
489730.	2055.	2233.	9506.	465.	7746.	219.	511954.	777754.	1953.	2820.	2965.
489770.	2055.	2233.	9509.	465.	7746.	219.	511997.	775761.	1949.	2818.	2932.
431469.	1807.	2404.	10301.	495.	6469.	230.	453235.	677474.	1643.	3060.	3207.
468946.	2056.	2073.	9298.	445.	5961.	215.	488994.	557703.	1378.	2645.	2874.
507629.	2182.	2198.	10722.	473.	6281.	228.	529683.	587812.	1456.	2805.	3207.
455755.	1987.	2012.	9147.	432.	5800.	211.	475344.	549658.	1352.	2594.	2830.
474251.	2170.	2480.	9978.	521.	6106.	246.	495752.	555939.	1380.	3036.	3108.
417122.	1804.	2235.	9506.	469.	5453.	223.	436912.	518067.	1288.	2835.	2965.
417160.	1804.	2235.	9509.	469.	5453.	223.	436953.	517864.	1287.	2832.	2932.

11779.	121992.	169.	1914029.
11449.	119724.	183.	1911340.
11493.	115121.	183.	1906169.
11524.	109866.	198.	1900436.
11562.	110029.	198.	1900643.
11050.	93918.	130.	2569692.
11820.	92427.	148.	2625647.
11054.	89583.	146.	2569277.
11084.	85929.	146.	2452082.
11101.	98035.	175.	2892329.
11238.	83737.	162.	2392182.
11267.	83850.	162.	2394068.
10474.	167860.	243.	4709547.
12061.	173514.	247.	4818773.
10538.	160843.	243.	4464552.
10673.	176976.	275.	5097862.
10968.	149529.	250.	4137843.
11029.	149756.	250.	4141523.
12692.	129648.	256.	3543363.
10474.	77130.	246.	2464909.
12061.	80258.	251.	2508654.
10538.	76287.	246.	2395785.
10673.	77949.	283.	2629736.
10968.	74868.	257.	2339439.
11029.	75013.	257.	2341043.
2977.	14295.	70.	463749.
2977.	14295.	70.	463749.
3157.	14295.	86.	464189.
2988.	29674.	47.	480848.
2971.	26213.	54.	476985.
2946.	25005.	54.	476278.
2980.	22416.	59.	472786.
2962.	22335.	59.	472683.
2920.	23276.	38.	598175.
3081.	21486.	48.	647980.
2921.	19776.	46.	596460.
2900.	19305.	46.	583012.
3023.	20035.	54.	612822.
2953.	18039.	52.	549218.
2937.	17975.	52.	548106.
2874.	34206.	63.	994095.
3207.	37533.	68.	1093221.
2830.	33294.	63.	966239.
3108.	31946.	69.	935876.
2965.	28087.	66.	813645.
2932.	27959.	66.	811485.
3207.	24237.	70.	709741.
2874.	17804.	65.	582466.
3207.	18715.	69.	614064.
2830.	17604.	65.	574108.
3108.	17613.	71.	581147.
2965.	16842.	68.	542665.
2932.	16763.	68.	541746.

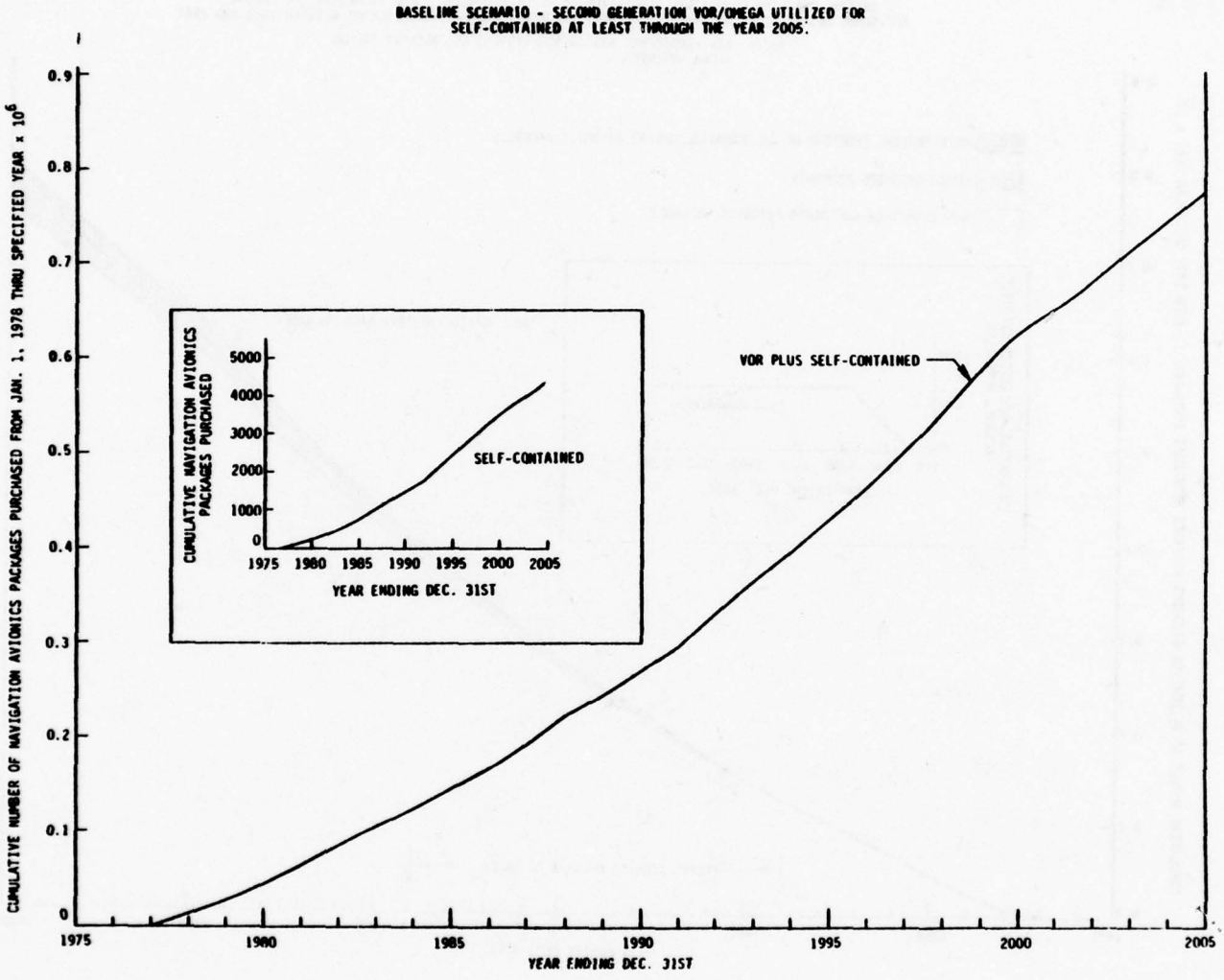


Figure C.1 Run 100 – Cumulative Number of Navigation Avionics Packages Purchased by Type of Air Navigation System

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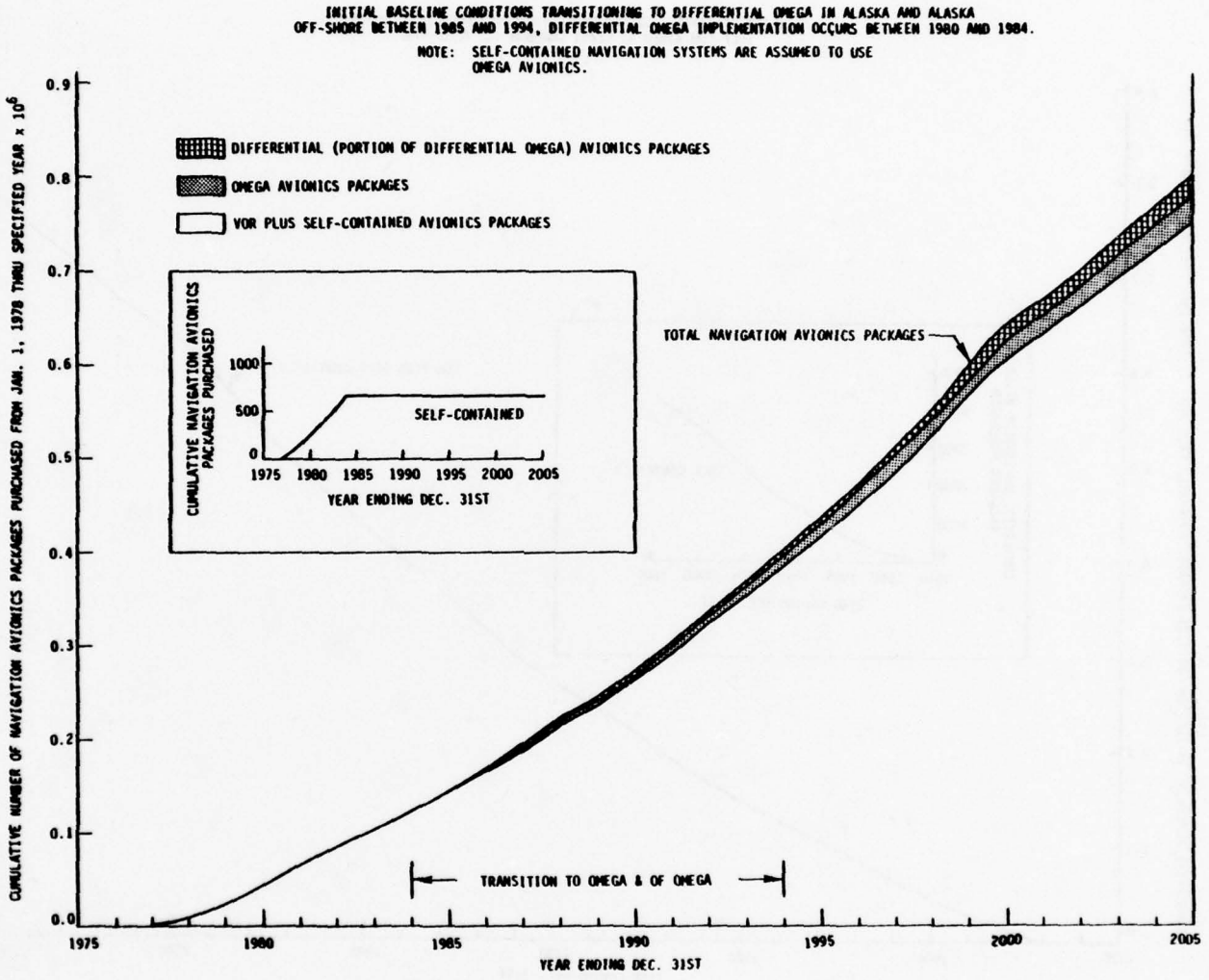


Figure C.2 Run 202 - Cumulative Number of Navigation Avionics Packages Purchased by Type of Air Navigation System

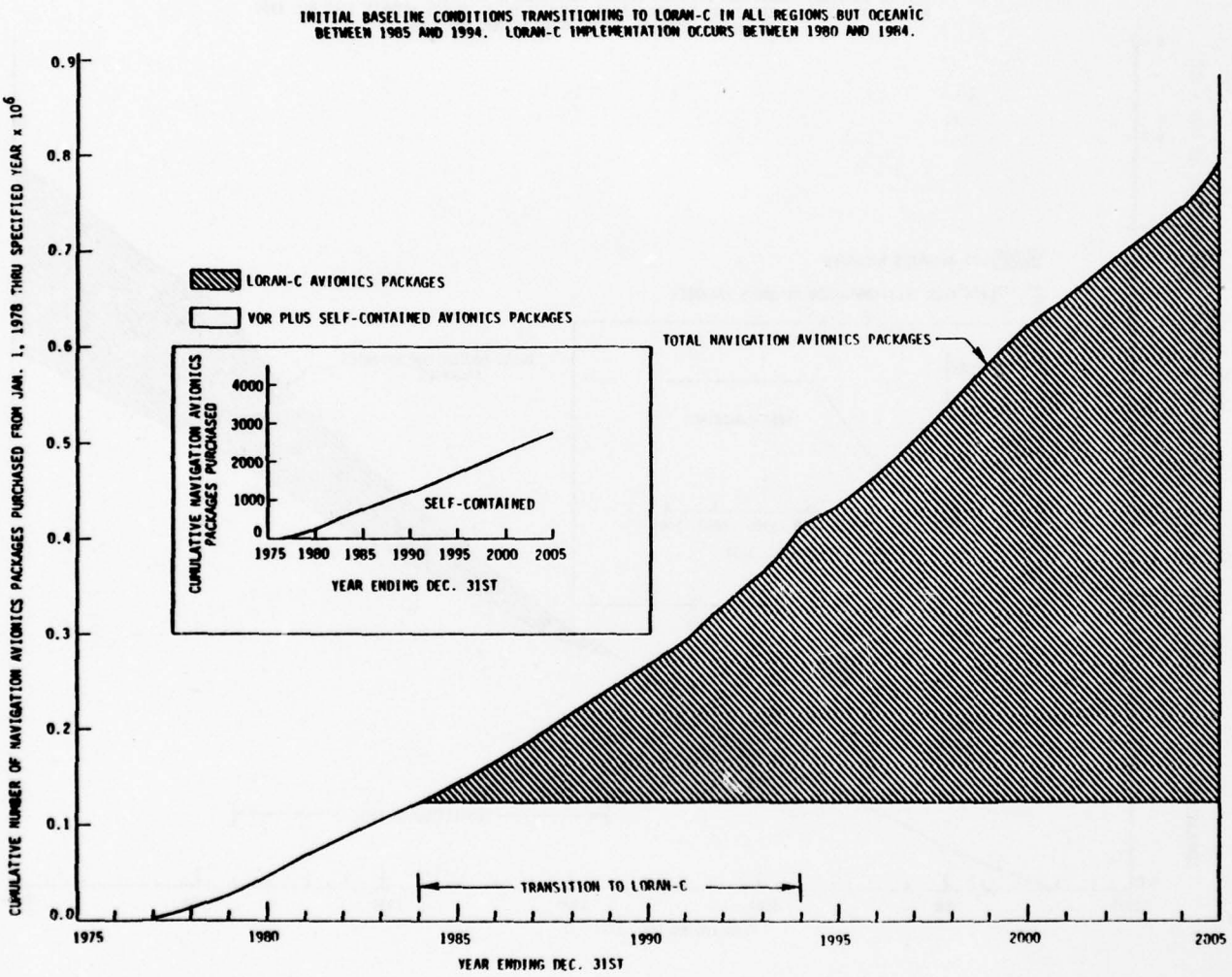


Figure C.3 Run 302 – Cumulative Number of Navigation Avionics Packages Purchased by Type of Air Navigation System

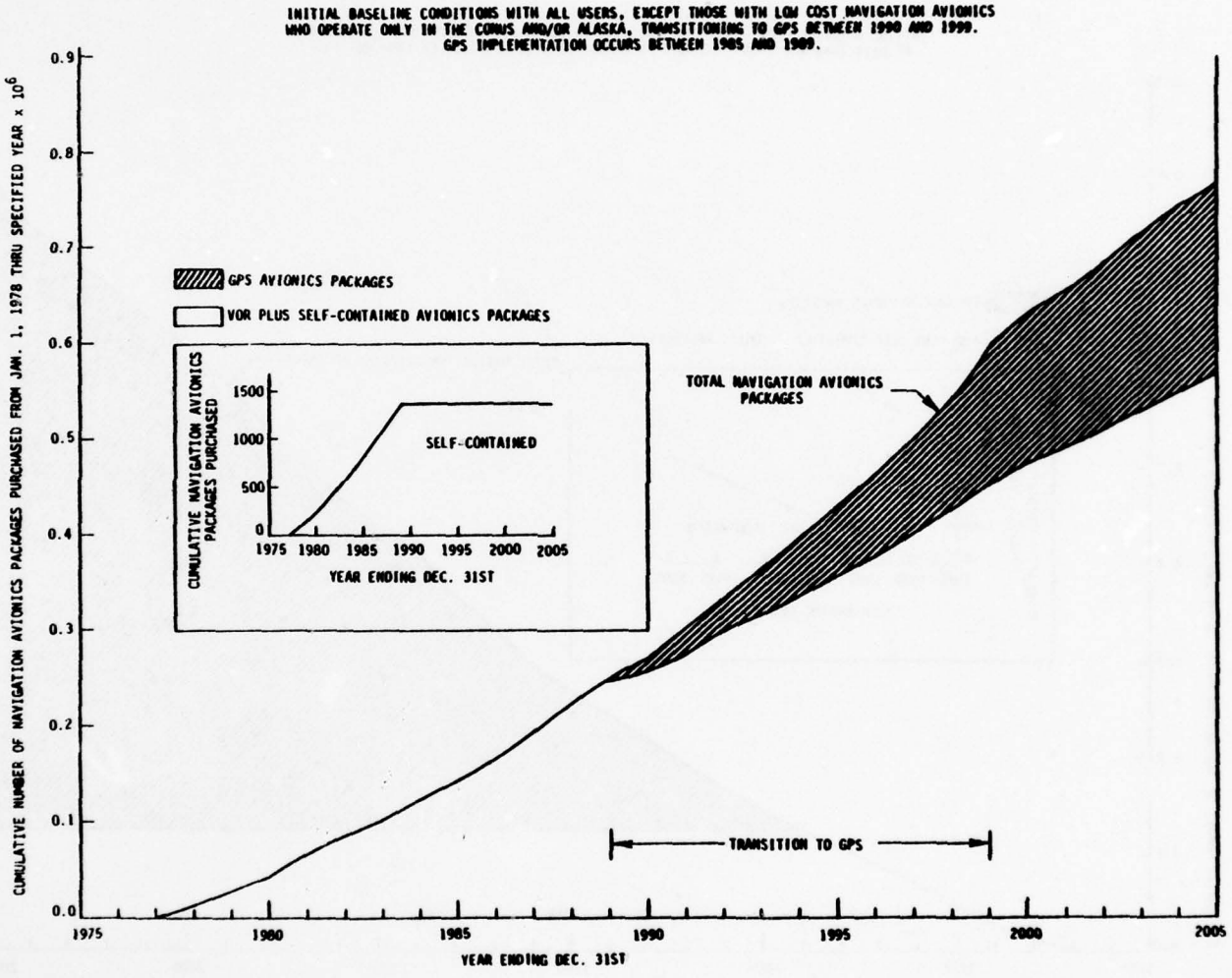


Figure C.4 Run 407 - Cumulative Number of Navigation Avionics Packages Purchased by Type of Air Navigation System

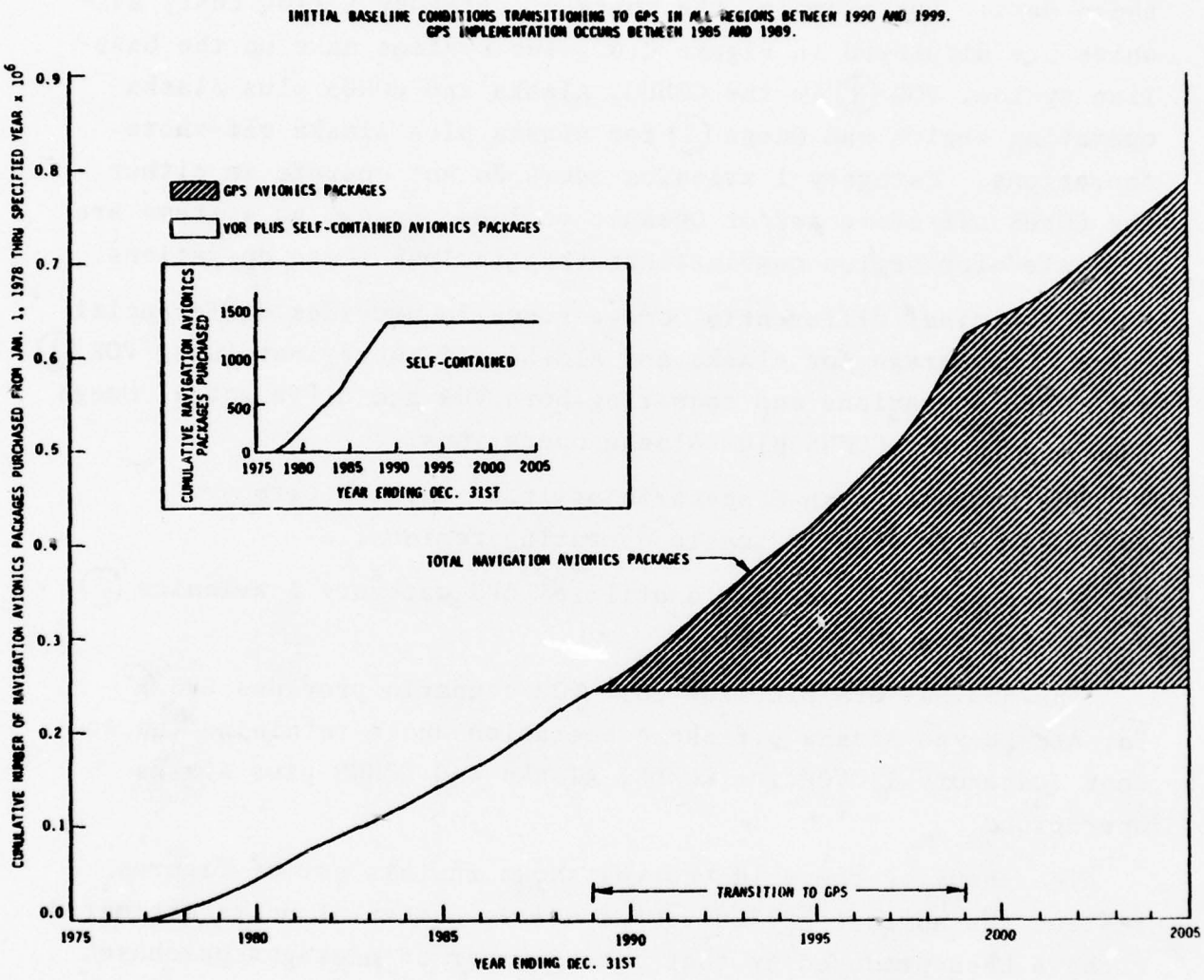


Figure C.5 Run 403 – Cumulative Number of Navigation Avionics Packages Purchased by Type of Air Navigation System

The projected avionics package purchase prices by year and operating region are presented in Figures C.6 through C.15 (one for each of the ten RAANS avionics categories). The relative cost of each system's avionics, for a given category, can be determined from these data. For example, the costs of category 1 (low cost) avionics are displayed in Figure C.6. Two systems make up the baseline system, VOR (1) in the CONUS, Alaska and CONUS plus Alaska operating region and Omega (2) for Alaska plus Alaska off-shore operations. Category 1 avionics users do not operate in either the CONUS off-shore and/or Oceanic regions; hence, no systems are indicated for region combinations that include these operations.

The nominal differential Omega scenario provides differential Omega (3) coverage for Alaska and Alaska off-shore, retaining VOR (1) for CONUS operations and requiring both VOR and differential Omega avionics (4) for CONUS plus Alaska operations.

The nominal Loran-C scenario utilizes Loran-C category 1 avionics (5) in all applicable operating regions.

The nominal GPS scenario utilizes GPS category 1 avionics (6) in all applicable regions.

The nominal GPS plus low cost VOR scenario provides GPS (7) for Alaska and Alaska off-shore operation while retaining the low-cost (category 1) VOR for CONUS, Alaska and CONUS plus Alaska operations.

The shape of the price curves shown in this set of figures reflect the nominal 1977 avionics price, number of units estimated to have been produced by that date, number of packages purchased from 1978 through 2005 for the stipulated scenarios, technology improvement factor and inflation. The VOR curve (1) of Figure C.6 reflects only inflation and technology improvement factor, since the number of category 1 VOR's produced to date exceeded the RAANS established production base cost reduction threshold of 20,000 units. All other curves on this figure indicate an initial price drop reflecting the influence of the production base cost reduction factor, this influence continues until the 20,000-th

INFLATION 7% PER YEAR TECHNOLOGY IMPROVEMENT COST REDUCTION = 5.1% PER YEAR
PRODUCTION BASE COST REDUCTION THROUGH 20,000TH UNIT

OPERATING REGION(S)	NAVIGATION SYSTEM ALTERNATIVE				
	BASELINE (100)	DIFF OMEGA (202)	LORAN-C (302)	GPS (403)	GPS&VOR (407)
CONUS	(1)	(1)	(5)	(5)	(7)
CONUS AND ALASKA	(1)	(4)	(5)	(5)	(7)
CONUS AND CONUS OFF SHORE	NA	NA	NA	NA	NA
CONUS AND OCEANIC	NA	NA	NA	NA	NA
CONUS, ALASKA AND OCEANIC	NA	NA	NA	NA	NA
CONUS, ALASKA AND OFF SHORE	NA	NA	NA	NA	NA
ALASKA	(1)	(3)	(5)	(6)	(7)
ALASKA AND ALASKA OFF SHORE	(2)	(3)	(5)	(6)	(7)

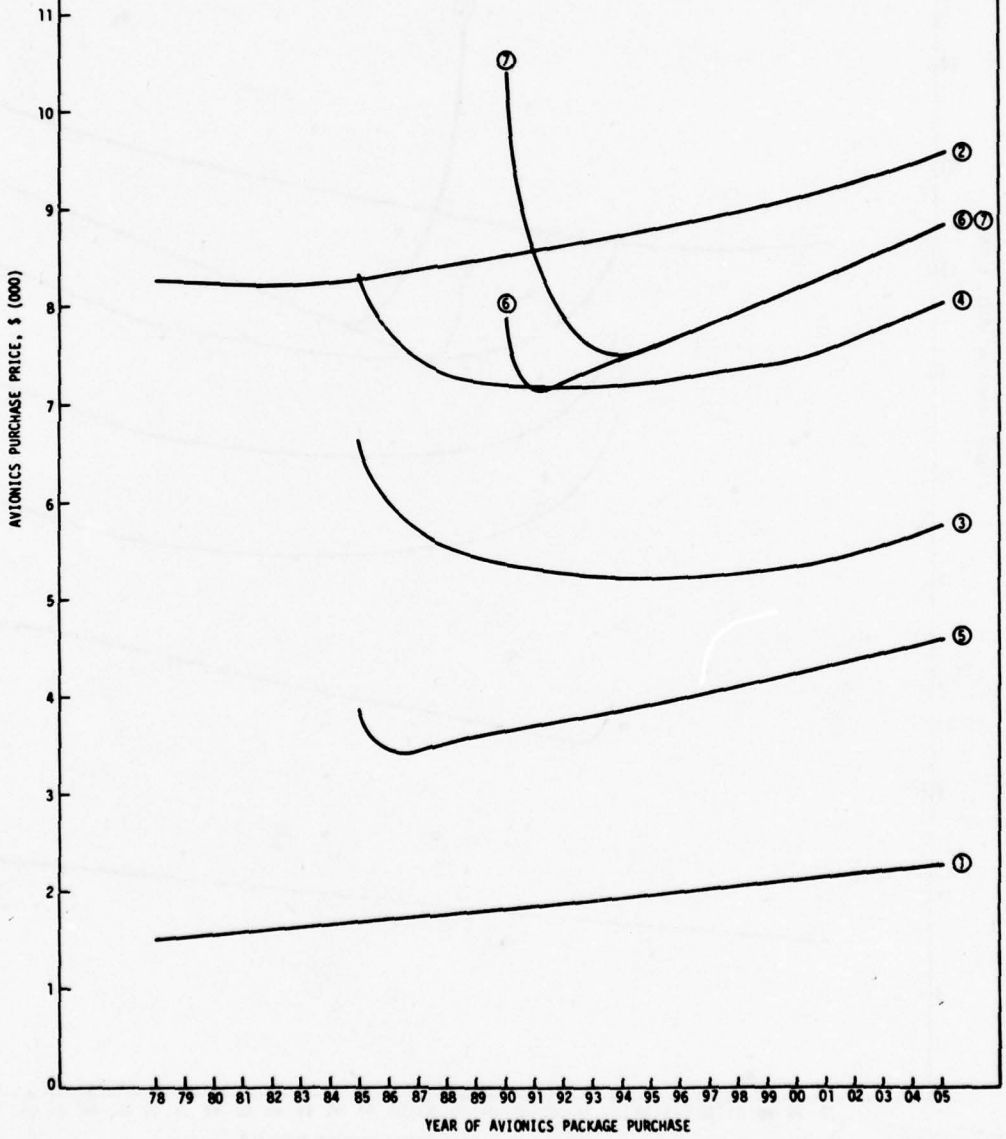


Figure C.6 Projected Avionics Category 1 Package Price by Operating Region and System Alternative (Nominal Implementation/Transition Scenarios)

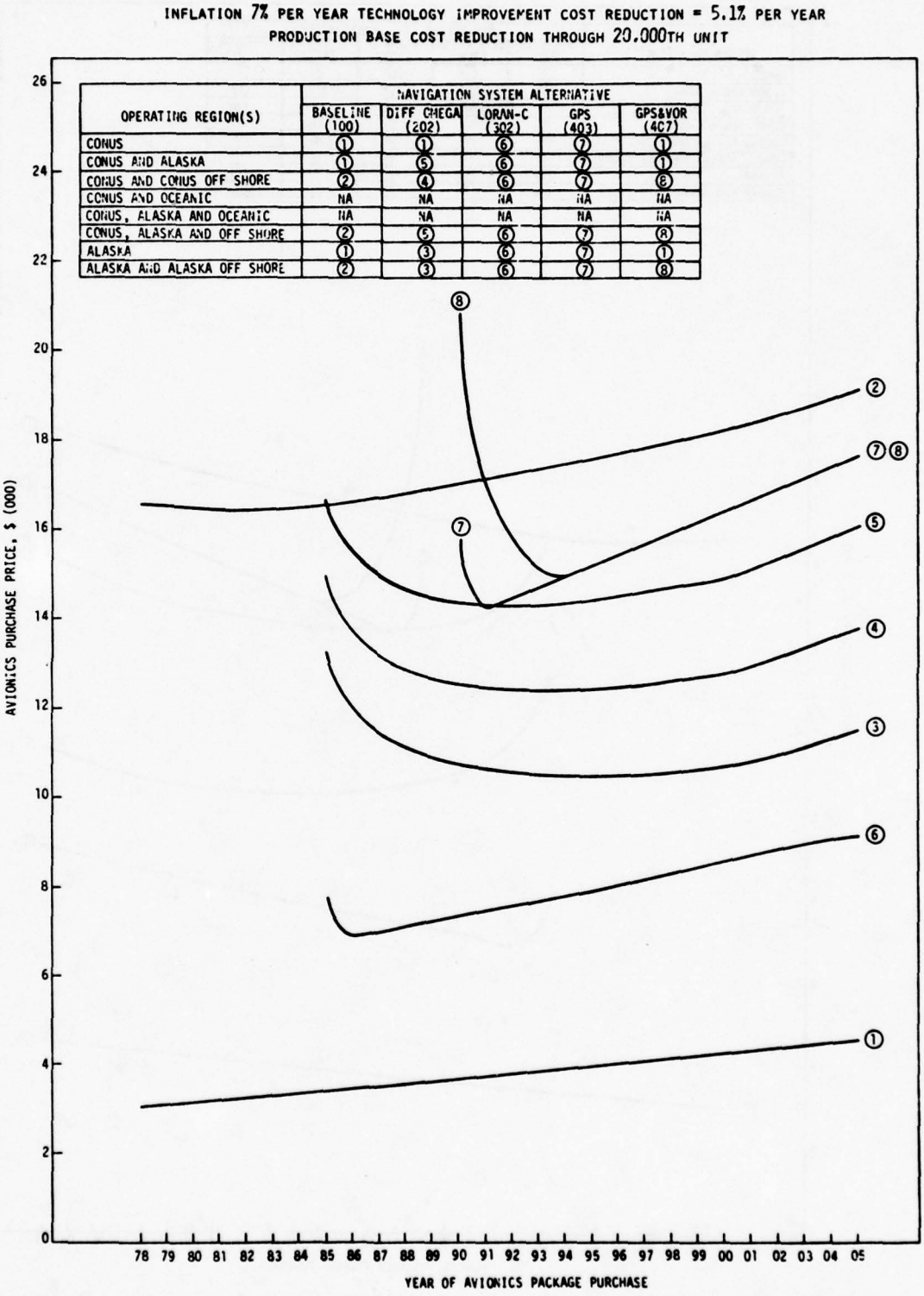


Figure C.7 Projected Avionics Category 2 Package Price by Operating Region and System Alternative (Nominal Implementation/Transition Scenarios)

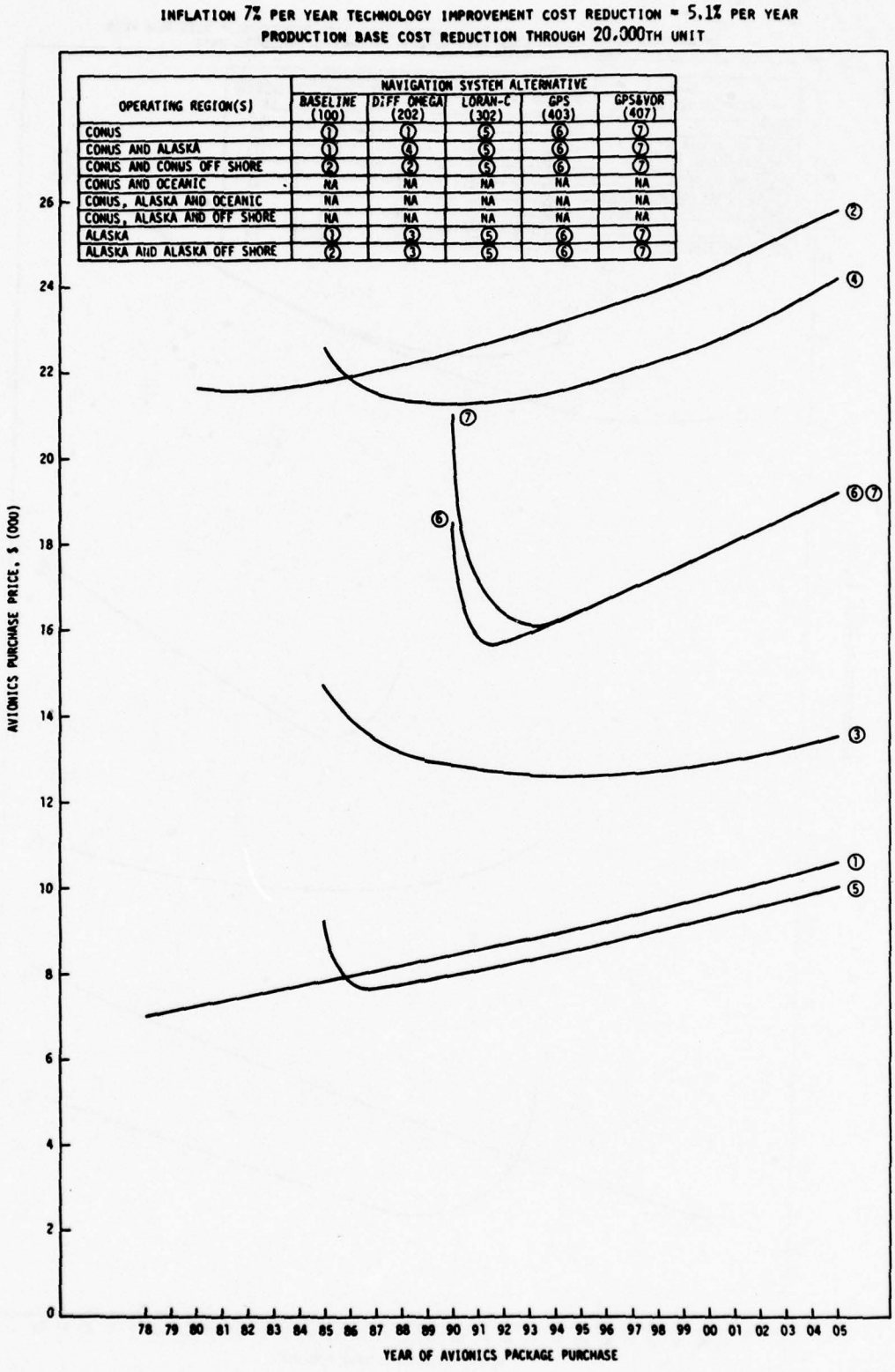


Figure C.8 Projected Avionics Category 3 Package Price by Operating Region and System Alternative (Nominal Implementation/Transition Scenarios)

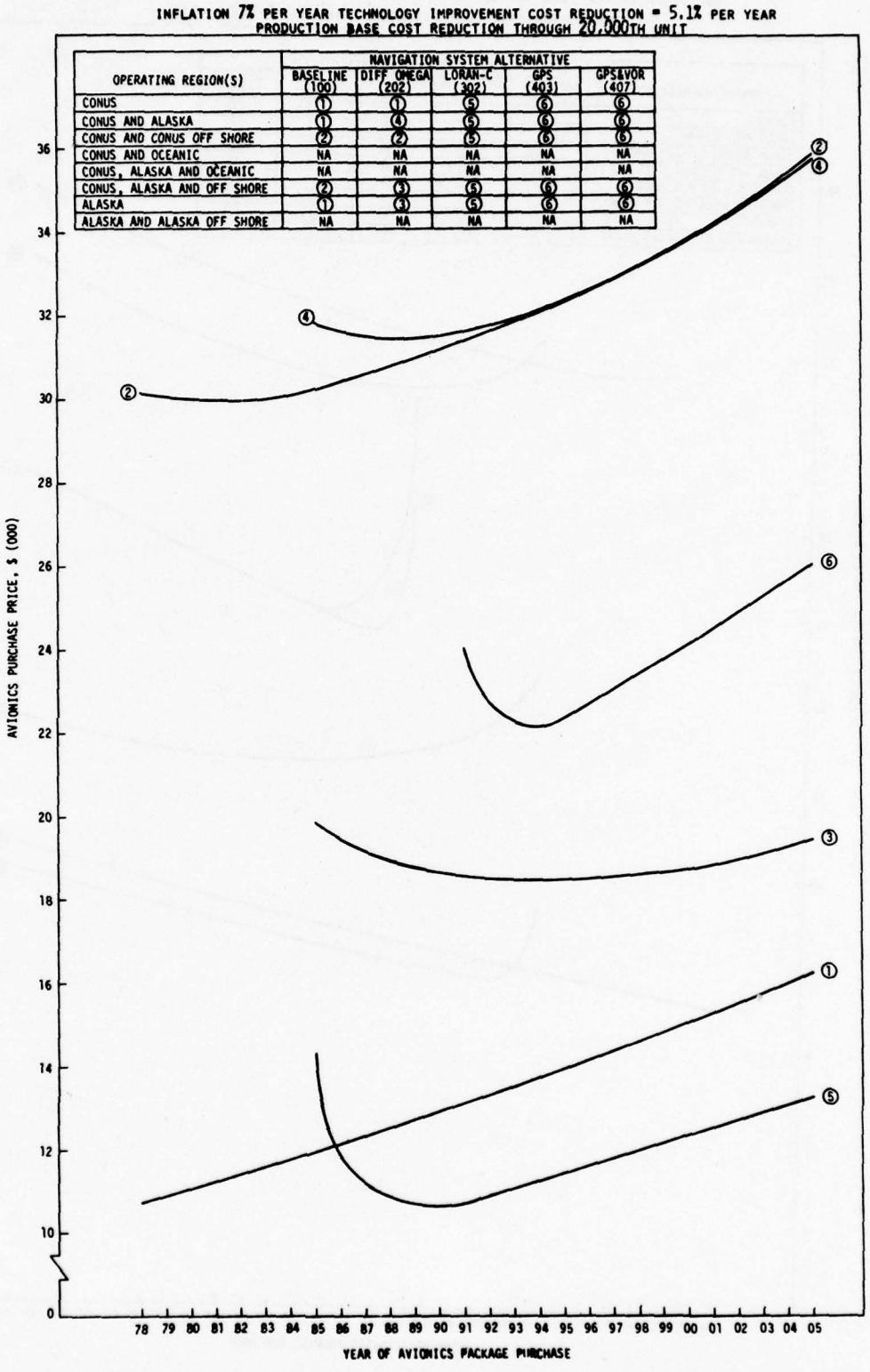


Figure C.9 Projected Avionics Category 4 Package Price by Operating Region and System Alternative (Nominal Implementation/Transition Scenarios)

INFLATION /% PER YEAR TECHNOLOGY IMPROVEMENT COST REDUCTION = 5.1% PER YEAR
PRODUCTION BASE COST REDUCTION THROUGH 20.000TH UNIT

OPERATING REGION(S)	NAVIGATION SYSTEM ALTERNATIVE				
	BASELINE (100)	DIFF OMEGA (202)	LORAN-C (302)	GPS (403)	GPS&VOR (407)
CONUS	(1)	(1)	(6)	(7)	(7)
CONUS AND ALASKA	(1)	(5)	(6)	(7)	(7)
CONUS AND CONUS OFF SHORE	(2)	(4)	(6)	(7)	(7)
CONUS AND OCEANIC	NA	NA	NA	NA	NA
CONUS, ALASKA AND OCEANIC	NA	NA	NA	NA	NA
CONUS, ALASKA AND OFF SHORE	NA	NA	NA	NA	NA
ALASKA	(1)	(3)	(6)	(7)	(7)
ALASKA AND ALASKA OFF SHORE	NA	NA	NA	NA	NA

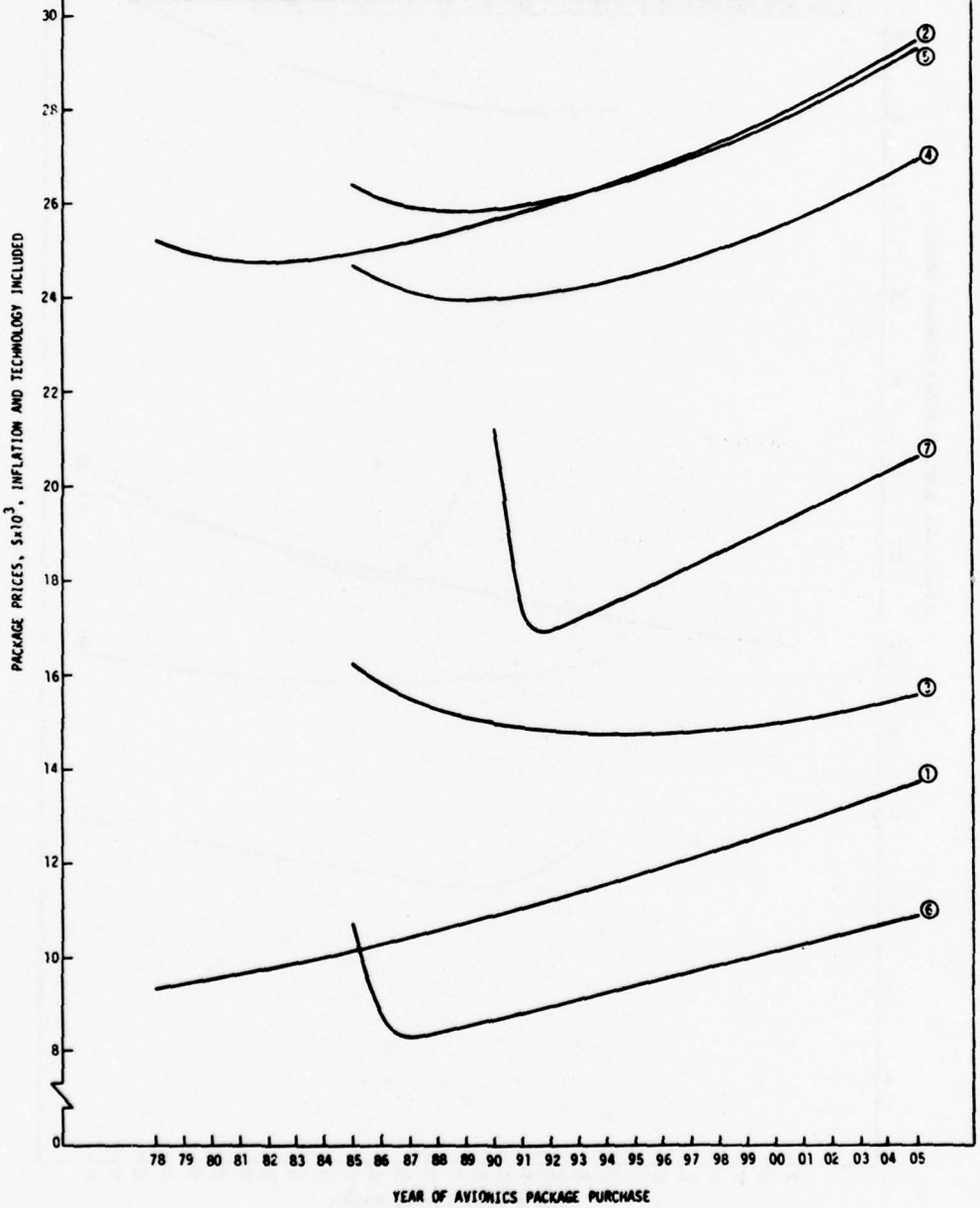


Figure C.10 Projected Avionics Category 5 Package Price by Operating Region and System Alternative (Nominal Implementation/Transition Scenarios)

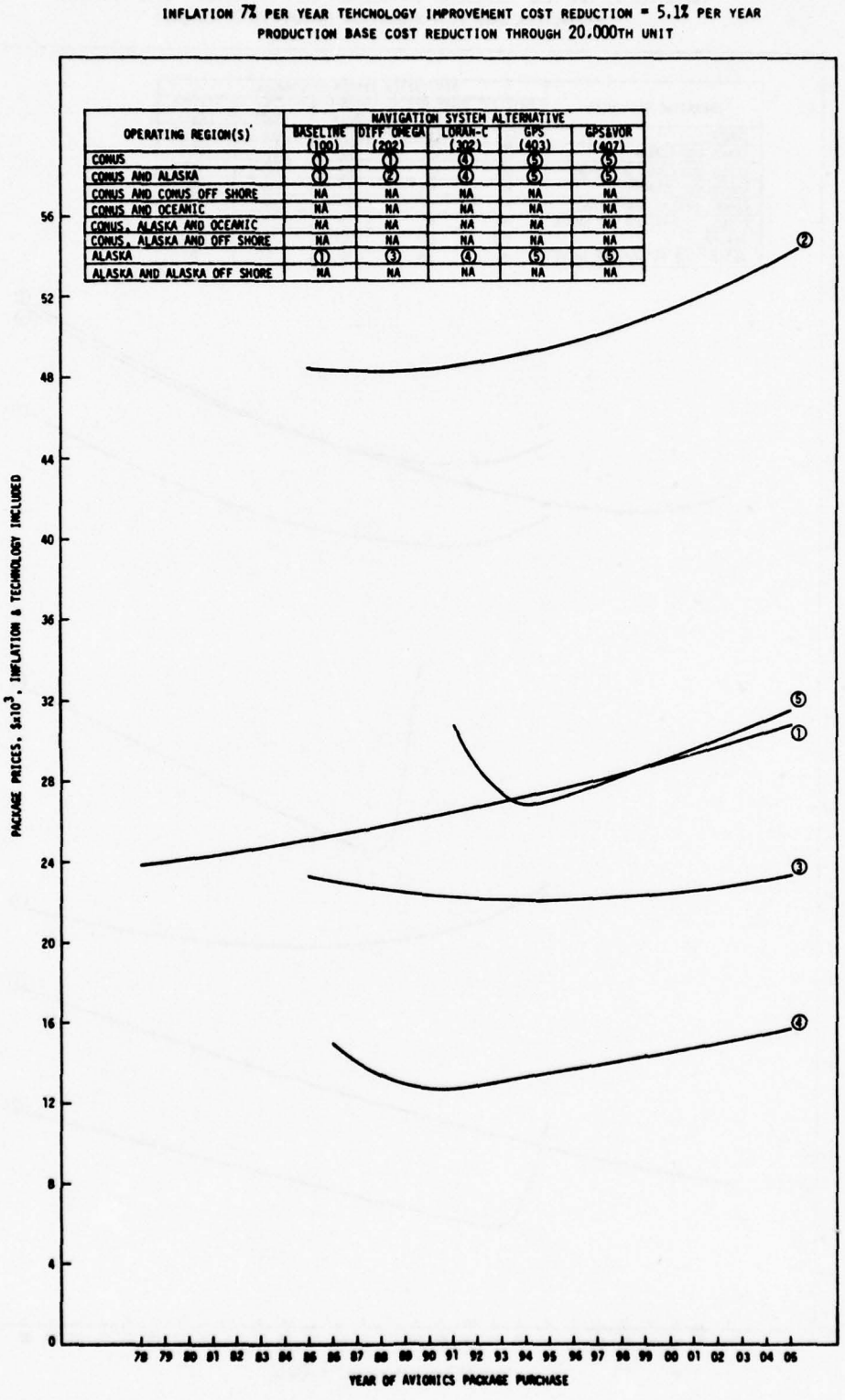


Figure C.11 Projected Avionics Category 6 Package Price by Operating Region and System Alternative (Nominal Implementation/Transition Scenarios)

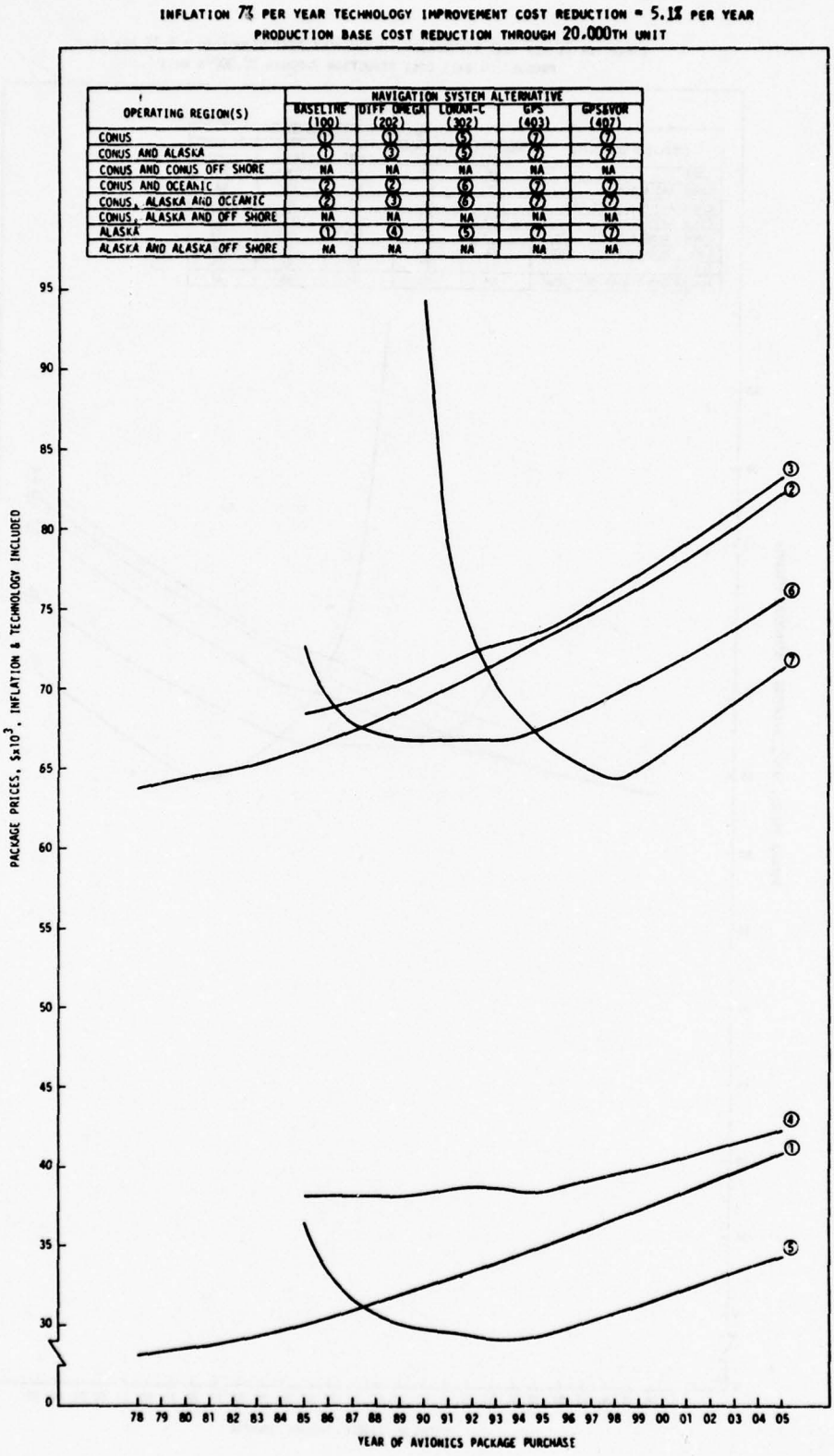


Figure C.12 Projected Avionics Category 7 Package Price by Operating Region and System Alternative (Nominal Implementation/Transition Scenarios)

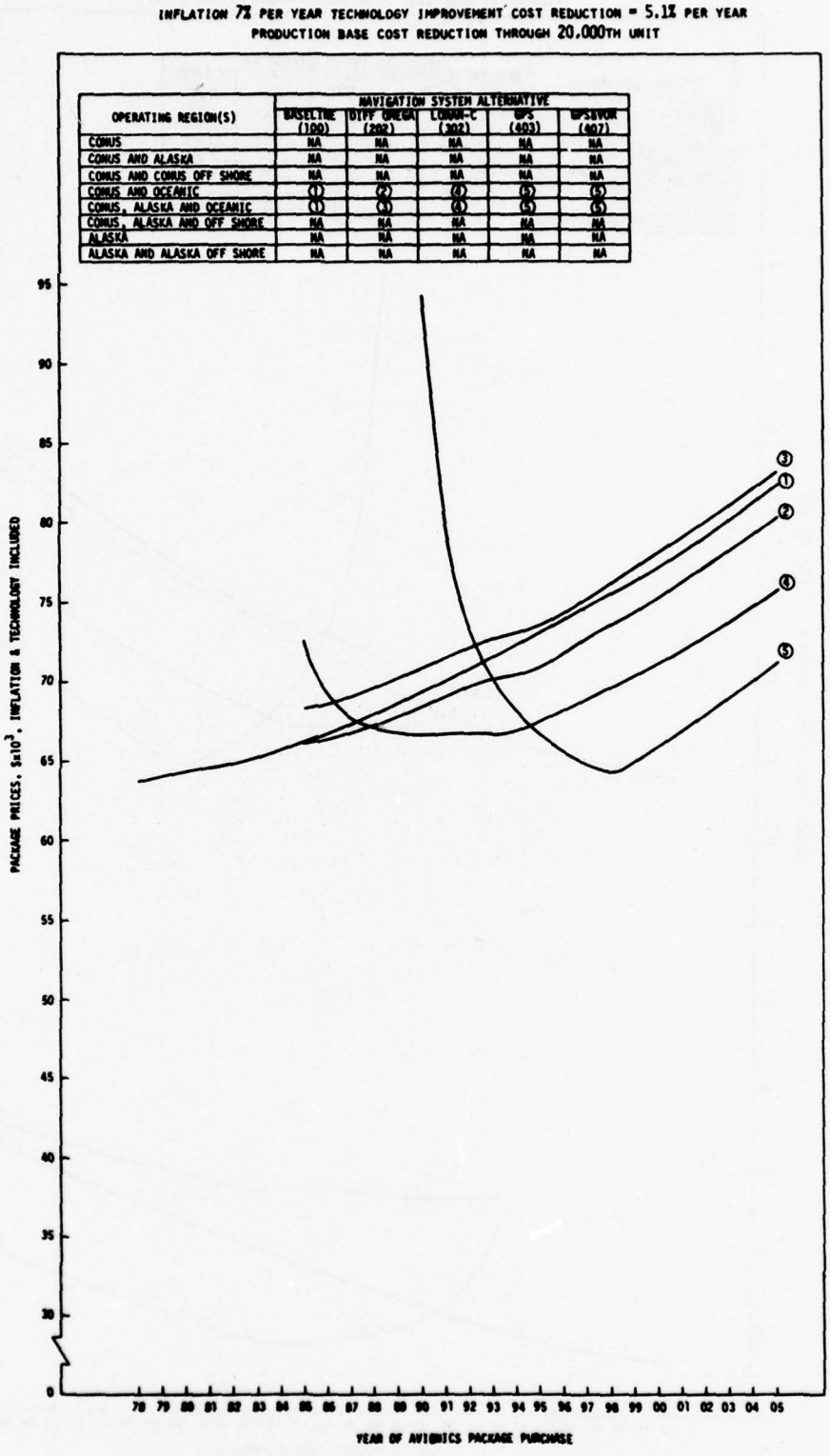


Figure C.13 Projected Avionics Category 8 Package Price by Operating Region and System Alternative (Nominal Implementation/Transition Scenarios)

INFLATION 7% PER YEAR TECHNOLOGY IMPROVEMENT COST REDUCTION = 5.1% PER YEAR
PRODUCTION BASE COST REDUCTION THROUGH 20,000TH UNIT

OPERATING REGION(S)	NAVIGATION SYSTEM ALTERNATIVE				
	BASELINE (100)	DIFF OMEGA (202)	LORAN-C (302)	GPS (403)	GPS&VOR (407)
CONUS	(1)	(1)	(4)	(6)	(6)
CONUS AND ALASKA	NA	NA	NA	NA	NA
CONUS AND CONUS OFF SHORE	NA	NA	NA	NA	NA
CONUS AND OCEANIC	(2)	(3)	(5)	(6)	(6)
CONUS, ALASKA AND OCEANIC	NA	NA	NA	NA	NA
CONUS, ALASKA AND OFF SHORE	NA	NA	NA	NA	NA
ALASKA	NA	NA	NA	NA	NA
ALASKA AND ALASKA OFF SHORE	NA	NA	NA	NA	NA

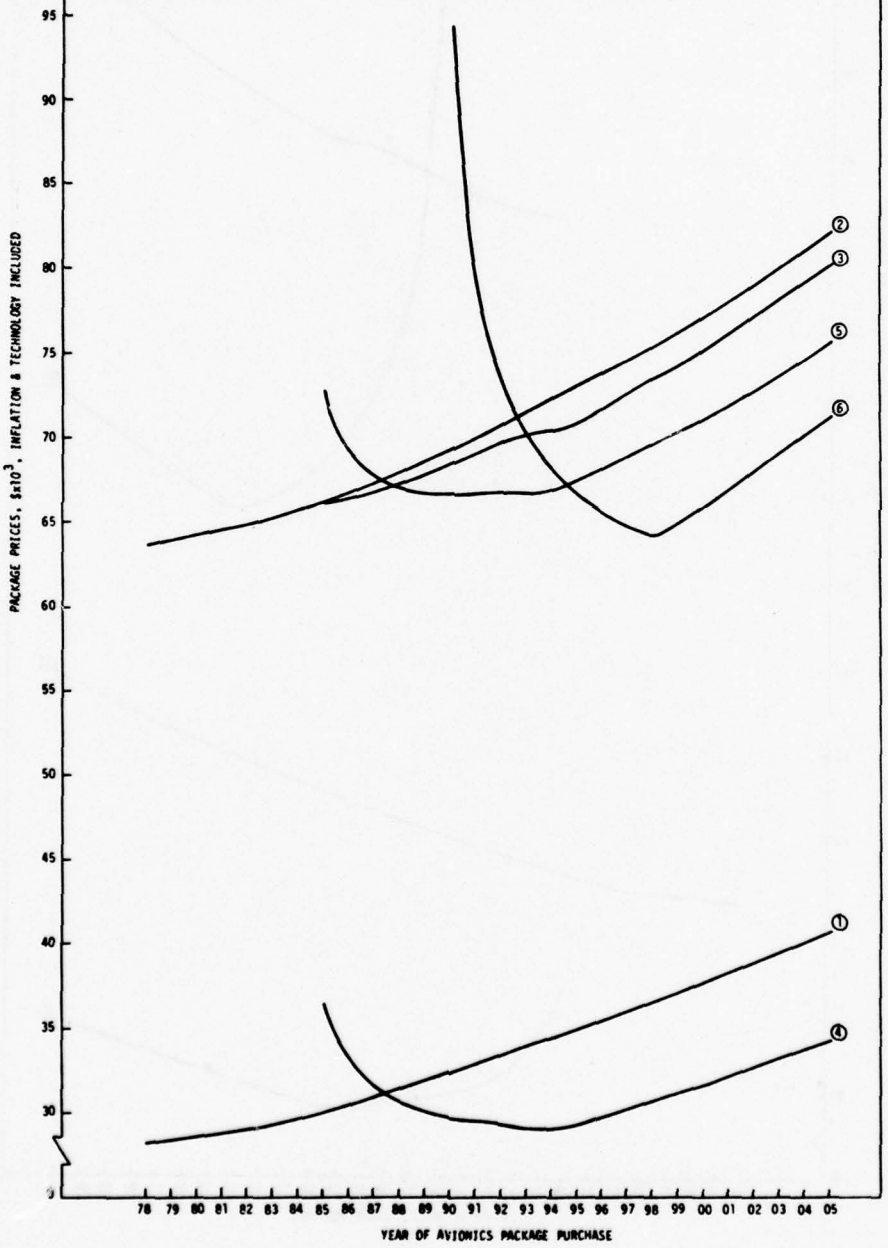


Figure C.14 Projected Avionics Category 9 Package Price by Operating Region and System Alternative (Nominal Implementation/Transition Scenarios)

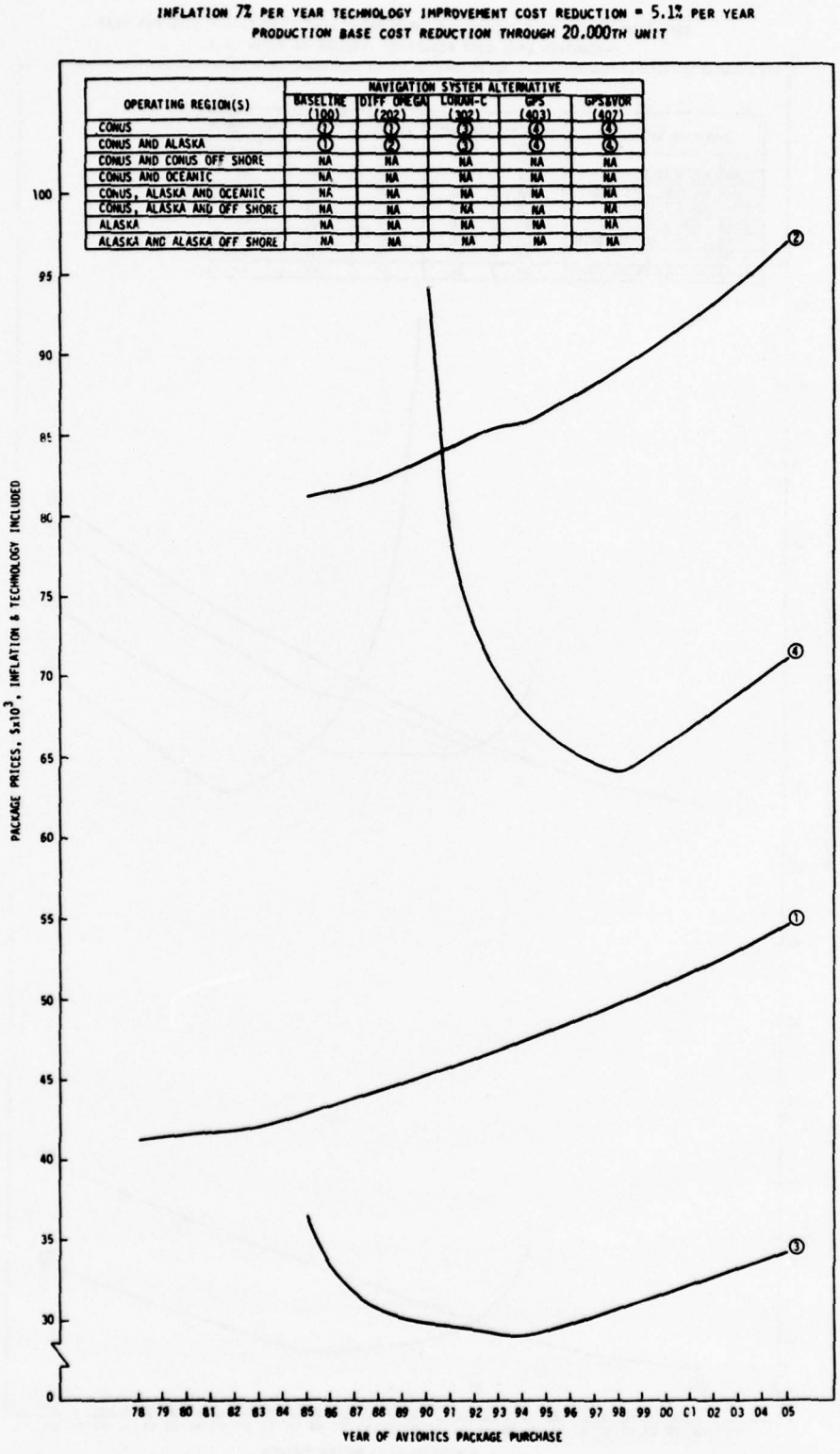


Figure C.15 Projected Avionics Category 10 Package Price by Operating Region and System Alternative (Nominal Implementation/Transition Scenarios)

unit is produced. The initial difference in the GPS price trends (6) and (7) can be attributed to the different GPS buy rates associated with the GPS and GPS plus low cost VOR scenarios, respectively.

Table C.3
Summary User and FAA Annualized Cost Printouts
(7% Inflation; 10% Present Value Discount)
By Navigation System-Implementation Scenario Combination

CASE 100. BASELINE VOR-2ND/OMEGA FOR SELF-CONTAINED. 1/6/78 PAGE 114

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	67233.	61121.	61121.	104724.	95204.	95204.
1979	52641.	43505.	77587.	95067.	78568.	139689.	147707.	122072.	217276.
1980	68708.	51621.	129208.	108092.	81211.	220900.	176799.	132832.	350108.
1981	86467.	59058.	188266.	90098.	61538.	282438.	176564.	120596.	470704.
1982	73660.	45737.	234003.	55513.	34469.	316907.	129173.	80206.	550910.
1983	62113.	35061.	269065.	49014.	27667.	344574.	111127.	62728.	613638.
1984	75312.	38647.	307712.	38185.	19595.	364169.	113497.	58242.	671881.
1985	87581.	40857.	348569.	40858.	19061.	383230.	128439.	59918.	731799.
1986	95477.	40492.	389060.	43719.	18541.	401771.	139196.	59033.	790831.
1987	95358.	36765.	425825.	46779.	18035.	419806.	142137.	54800.	845631.
1988	138338.	48487.	474312.	50053.	17543.	437349.	188391.	66030.	911661.
1989	87323.	27824.	502136.	53557.	17065.	454414.	140880.	44889.	956550.
1990	109630.	31756.	533891.	57306.	16600.	471014	166936.	48355.	1004905.
1991	131353.	34589.	568481.	61318.	16147.	487161.	192670.	50736.	1055641.
1992	153387.	36720.	605200.	65610.	15706.	502867.	218997.	52426.	1108067.
1993	143347.	31197.	636397.	70202.	15278.	518145.	213550.	46475.	1154542.
1994	138988.	27498.	663895.	75117.	14861.	533007.	214104.	42359.	1196901.
1995	159367.	28664.	692558.	80375.	14456.	547463.	239742.	43120.	1240021.
1996	173499.	28368.	720927.	86001.	14062.	561525.	259500.	42430.	1282451.
1997	179472.	26677.	747604.	92021.	13678.	575203.	271493.	40356.	1322807.
1998	194451.	26344.	773948.	98463.	13305.	588508.	293413.	39649.	1362456.
1999	252641.	31036.	804984.	105355.	12942.	601451.	357996.	43978.	1406435.
2000	202634.	22030.	827014.	112730.	12589.	614040.	315363.	35219.	1441654.
2001	92359.	9377.	836990.	120621.	12246.	626286.	212980.	21623.	1463277.
2002	124949.	11532.	848523.	129064.	11912.	638198.	254014.	23444.	1486721.
2003	147625.	12387.	860909.	138099.	11587.	649786.	285724.	23974.	1510695.
2004	140610.	10725.	871635.	147766.	11271.	661057.	288376.	21997.	1532692.
2005	140468.	9741.	881375.	158109.	10964.	672021.	298577.	20704.	1553396.
2006	169540.	10688.	892063.	169177.	10665.	682685.	338717.	21353.	1574748.
2007	197168.	11301.	903364.	181019.	10374.	693059.	378208.	21675.	1596423.
2008	210339.	10958.	914322.	193691.	10091.	703150.	404030.	21049.	1617472.
2009	229696.	10879.	925201.	207249.	9816.	712966.	436945.	20695.	1638167.
2010	291309.	12543.	937744.	221757.	9548.	722514.	513066.	22091.	1660258.

Table C.3 (Continued)

CASE 101. BASELINE VOR-UPG/OMEGA FOR SELF-CONTAINED. 1/16/78 PAGE 106

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	60840.	55309.	55309.	98331.	89391.	89391.
1979	52641.	43505.	77587.	70365.	58153.	113462.	123006.	101658.	191049.
1980	68708.	51821.	129208.	75291.	56567.	170029.	143998.	108188.	299237.
1981	86467.	59058.	188266.	72468.	49497.	219526.	158935.	108555.	407792.
1982	73600.	45737.	234003.	74230.	46091.	265617.	147890.	91828.	499620.
1983	62113.	35061.	269065.	77063.	43500.	309117.	139177.	78562.	578181.
1984	75312.	38647.	307712.	60442.	31016.	340133.	135754.	69663.	647845.
1985	87581.	40857.	348569.	64673.	30170.	370303.	152254.	71027.	718872.
1986	95477.	40492.	389060.	69200.	29347.	399651.	164677.	69839.	788711.
1987	95358.	36765.	425825.	74044.	28547.	428198.	169402.	65312.	854023.
1988	138338.	48487.	474312.	79227.	27768.	455966.	217564.	76255.	930278.
1989	87323.	27824.	502136.	84772.	27011.	482977.	172096.	54835.	985113.
1990	109630.	31756.	533891.	90707.	26274.	509252.	200336.	58030.	1043143.
1991	131353.	34589.	568481.	97056.	25558.	534609.	228409.	60147.	1103290.
1992	153387.	36720.	605200.	103850.	24861.	559670.	257237.	61580.	1164871.
1993	143347.	31197.	636397.	111119.	24183.	583853.	254467.	55379.	1220250.
1994	138988.	27498.	663895.	118898.	23523.	607376.	257886.	51021.	1271271.
1995	159367.	28664.	692558.	127221.	22882.	630258.	286587.	51545.	1322816.
1996	173499.	28368.	720927.	136126.	22258.	652516.	309625.	50626.	1373443.
1997	179472.	26677.	747604.	145655.	21651.	674167.	325127.	48328.	1421771.
1998	194951.	26344.	773948.	155851.	21060.	695227.	350802.	47404.	1469175.
1999	252641.	31036.	804984.	166760.	20486.	715713.	419401.	51522.	1520696.
2000	202634.	22630.	827614.	178434.	19927.	735640.	381067.	42557.	1563253.
2001	92359.	9377.	836990.	190924.	19384.	755023.	283283.	28761.	1592014.
2002	124949.	11532.	848523.	204289.	18855.	773878.	329238.	30387.	1622401.
2003	147625.	12387.	860909.	218589.	18341.	792219.	366214.	30727.	1653128.
2004	140610.	10725.	871635.	233890.	17841.	810060.	374500.	28566.	1681694.
2005	140468.	9741.	881375.	250262.	17354.	827414.	390730.	27095.	1708789.
2006	169540.	10688.	892063.	267781.	16881.	844294.	437320.	27568.	1736357.
2007	197188.	11301.	903364.	286525.	16420.	860715.	483713.	27721.	1764078.
2008	210339.	10958.	914322.	306582.	15973.	876687.	516921.	26931.	1791009.
2009	229696.	10879.	925201.	328043.	15537.	892224.	557739.	26416.	1817425.
2010	291309.	12543.	937744.	351006.	15113.	907337.	642315.	27656.	1845081.

Table C.3 (Continued)

CASE 102. VOR-2ND/SELF-CONT. TRANS. TO OMEGA OFF-SHORE/OCEANIC 1/13/78 PAGE 106

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	40121.	36474.	36474.	65693.	59721.	59721.	105814.	96195.	96195.
1979	55737.	46004.	82538.	94242.	77886.	137607.	149979.	123950.	220144.
1980	72454.	54435.	136973.	108092.	81211.	218818.	180545.	135646.	355791.
1981	67427.	46714.	183687.	90098.	61536.	280356.	157525.	121252.	477042.
1982	74896.	46500.	243193.	55513.	34469.	314825.	130411.	80975.	558017.
1983	83041.	35924.	279116.	49014.	27607.	342492.	112655.	63591.	621608.
1984	77074.	29551.	318666.	38185.	19595.	362087.	115260.	59147.	680755.
1985	84576.	41694.	360362.	40858.	19061.	381148.	130234.	60755.	741510.
1986	97171.	41210.	401572.	43719.	18541.	399689.	140890.	59751.	801261.
1987	90954.	37380.	438952.	46774.	17035.	417724.	143733.	55415.	856676.
1988	134068.	48953.	487905.	50054.	17543.	435267.	189722.	66496.	923173.
1989	80451.	28163.	516068.	53557.	17005.	452332.	142008.	45248.	968421.
1990	111305.	32241.	548329.	57330.	16600.	468932.	168611.	48841.	1017261.
1991	134703.	35457.	583817.	61318.	16147.	485079.	196080.	51634.	1068895.
1992	152465.	36499.	620316.	65610.	15708.	500785.	218075.	52205.	1121101.
1993	142181.	30943.	651258.	70202.	15278.	516063.	212384.	46221.	1167322.
1994	137936.	27290.	678548.	75117.	14861.	530925.	213053.	42151.	1209473.
1995	158093.	28418.	706967.	80375.	14456.	545381.	238378.	42874.	1252347.
1996	172851.	28203.	735229.	86001.	14062.	559443.	258852.	42324.	1294672.
1997	179339.	26658.	761887.	92021.	13678.	573121.	271360.	40336.	1335008.
1998	195283.	26589.	788476.	98465.	13305.	586426.	293748.	39694.	1374702.
1999	252999.	31080.	819555.	105355.	12942.	599369.	358354.	44022.	1418724.
2000	202916.	22001.	842017.	112730.	12589.	611958.	315646.	35251.	1453975.
2001	42544.	4390.	851412.	160821.	12246.	624204.	213165.	21642.	1475617.
2002	125036.	11540.	862953.	129004.	11912.	636116.	254101.	23452.	1499069.
2003	147658.	12589.	875342.	138099.	11587.	647704.	285757.	23977.	1523046.
2004	141505.	10794.	886136.	147766.	11271.	658975.	289271.	22065.	1545110.
2005	144252.	10003.	896139.	158109.	10964.	669939.	302361.	20967.	1566077.
2006	106513.	10625.	906762.	169177.	10665.	680604.	337690.	21288.	1587365.
2007	145040.	11226.	917987.	181019.	10374.	690977.	376905.	21600.	1608965.
2008	209157.	10847.	928834.	193641.	10091.	701068.	402848.	20988.	1629953.
2009	228149.	10806.	939640.	207249.	9816.	710884.	435398.	20622.	1650574.
2010	240500.	12511.	952201.	221757.	9548.	720432.	512323.	22059.	1672633.

Table C.3 (Continued)

CASE 200. VOR-2ND//OMEGA. TRANS. TO OMEGA/DIFF OMEGA IN AKA AND AKA OS 1/12/78 PAGE 106

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34093.	34093.	64112.	58284.	58284.	101603.	92366.	92366.
1979	52641.	43505.	77587.	98671.	81546.	139829.	151311.	125050.	217417.
1980	66708.	51621.	129208.	113534.	85300.	225129.	182242.	136921.	354337.
1981	91359.	62406.	191614.	89668.	61245.	286374.	181037.	123651.	477988.
1982	77628.	48291.	239905.	55954.	34184.	320558.	132682.	82385.	560373.
1983	65413.	36924.	276739.	48523.	27390.	347946.	113936.	64314.	624687.
1984	78613.	40341.	317080.	39801.	20424.	368372.	118414.	60765.	685452.
1985	90975.	42441.	359521.	42587.	19867.	388239.	133562.	62308.	747760.
1986	98728.	41870.	401391.	45568.	19325.	407565.	144296.	61196.	808956.
1987	98303.	37900.	439291.	48758.	18798.	426363.	147060.	56698.	865654.
1988	101892.	35732.	489023.	52171.	18286.	444648.	194063.	68018.	933672.
1989	92371.	29432.	518455.	55823.	17787.	462435.	148193.	47219.	980890.
1990	123950.	35904.	554359.	59730.	17302.	479737.	183680.	53206.	1034096.
1991	130528.	34319.	588679.	60312.	15882.	495619.	190840.	50201.	1084298.
1992	155038.	37115.	625793.	64534.	15449.	511068.	219571.	52564.	1136861.
1993	145682.	31705.	657498.	69051.	15028.	526095.	214733.	46732.	1183593.
1994	141245.	27945.	685442.	73885.	14618.	540713.	215130.	42562.	1226156.
1995	161592.	29064.	714506.	79057.	14219.	554932.	240649.	43283.	1269438.
1996	176725.	28895.	743402.	84591.	13831.	568763.	261316.	42727.	1312166.
1997	184156.	27578.	770980.	90512.	13454.	582217.	274668.	40832.	1352998.
1998	189641.	27011.	797992.	96848.	13087.	595304.	296739.	40098.	1393096.
1999	259443.	31671.	829663.	103627.	12730.	608035.	363070.	44602.	1437698.
2000	206591.	23295.	852958.	110881.	12383.	620418.	319472.	35678.	1473376.
2001	190653.	19217.	872175.	118643.	12045.	632463.	219275.	22262.	1495638.
2002	124377.	11480.	884655.	126948.	11717.	644180.	251325.	23196.	1518834.
2003	152698.	12812.	897467.	135834.	11397.	655577.	288532.	24209.	1543044.
2004	151292.	11590.	909057.	145342.	11086.	666663.	296635.	22627.	1565670.
2005	143020.	9917.	918974.	155516.	10784.	677447.	298536.	20701.	1586372.
2006	172503.	10860.	929790.	166402.	10490.	687937.	338765.	21356.	1607727.
2007	200205.	11473.	941264.	176051.	10204.	698141.	378256.	21677.	1629404.
2008	213915.	11145.	952408.	190514.	9926.	708066.	404429.	21070.	1650475.
2009	233244.	11047.	963455.	203950.	9655.	717721.	437099.	20702.	1671177.
2010	246594.	12770.	966226.	218120.	9392.	727113.	514714.	22162.	1693339.

Table C.3 (Continued)

CASE 202. VOR-2ND//OMEGA. TRANS. TO OMEGA/DIFF OMEGA IN AKA AND AKA OS 1/12/78 PAGE 106

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	64112.	58284.	58284.	101603.	92366.	92366.
1979	52641.	43505.	77587.	94326.	77955.	136239.	146966.	121460.	213826.
1980	69738.	51621.	129208.	110040.	82675.	218914.	178748.	134296.	348122.
1981	80467.	59058.	188266.	90452.	61750.	280664.	176919.	120838.	468960.
1982	73600.	45737.	234003.	86215.	34905.	315599.	129876.	80643.	549602.
1983	82113.	35061.	269065.	80110.	28286.	343885.	112223.	63347.	612950.
1984	75312.	38647.	307712.	41869.	21485.	365370.	117181.	60132.	673082.
1985	92479.	43375.	351087.	42567.	19867.	385238.	135566.	63242.	736324.
1986	100226.	42505.	393592.	45568.	19325.	404563.	145794.	61831.	798155.
1987	99569.	38388.	431981.	48758.	18798.	423361.	148327.	57187.	855342.
1988	142937.	50045.	482079.	52171.	18286.	441647.	195108.	68384.	923726.
1989	90785.	28920.	510999.	55823.	17787.	459433.	146587.	46707.	970433.
1990	113661.	32923.	543923.	59730.	17302.	476735.	173391.	50225.	1020658.
1991	135509.	35604.	579527.	63912.	16830.	493565.	199421.	52514.	1073172.
1992	150439.	37729.	617256.	68385.	16371.	509936.	226824.	54300.	1127472.
1993	151426.	32955.	650490.	73172.	15924.	525861.	224598.	48879.	1176351.
1994	150337.	30930.	681421.	78294.	15490.	541351.	234631.	46421.	1222771.
1995	157375.	28305.	709726.	79057.	14219.	555570.	236431.	42524.	1265296.
1996	174024.	28454.	738180.	84591.	13831.	569401.	258615.	42286.	1307581.
1997	182232.	27088.	765268.	90512.	13454.	582855.	272744.	40542.	1348123.
1998	197754.	26723.	791991.	96846.	13087.	595942.	294602.	39810.	1387933.
1999	255963.	31444.	823435.	103627.	12730.	608672.	359590.	44174.	1432107.
2000	205544.	22955.	846390.	110881.	12383.	621055.	316430.	35338.	1467445.
2001	95824.	9729.	856119.	118643.	12045.	633100.	214466.	21774.	1489219.
2002	128716.	11660.	867949.	126948.	11717.	644917.	255664.	23597.	1512816.
2003	152363.	12784.	880783.	135834.	11397.	656214.	288197.	24181.	1536997.
2004	145176.	11074.	891856.	145342.	11086.	667301.	290519.	22160.	1559157.
2005	150452.	10431.	902288.	155516.	10784.	678085.	305968.	21215.	1580373.
2006	170695.	10761.	913048.	166402.	10490.	688575.	337097.	21250.	1601623.
2007	204510.	11720.	924769.	178051.	10204.	698778.	382561.	21924.	1623547.
2008	226491.	11717.	936485.	190514.	9926.	708704.	415006.	21642.	1645189.
2009	232358.	11005.	947490.	203850.	9655.	718359.	436208.	20660.	1665849.
2010	245373.	12710.	960206.	218120.	9392.	727750.	513493.	22109.	1687958.

Table C.3 (Continued)

CASE 204. VOR-2ND//OMEGA. TRANS. TO OMEGA/DIFF OMEGA IN AKA AND AKA OS 1/12/78 PAGE 106

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	64112-	58284.	58284.	101603.	92366.	92366.
1979	32041.	43505.	77587.	94326.	77955.	136239.	146966.	121460.	213826.
1980	68708.	51021.	129208.	108181-	81278.	217516.	176888.	132899.	346724.
1981	86467.	59056.	188264.	88161-	60215.	277732.	174628.	119273.	465998.
1982	73660.	45737.	234003.	53441-	33193.	310914.	127101.	78920.	544918.
1983	62113.	35061.	269065.	46797-	26416.	337330.	108910.	61477.	606394.
1984	75312.	38047.	307712.	37954-	19477.	356806.	113266.	58123.	664518.
1985	87581.	40857.	348569.	43219-	20162.	376968.	130800.	61019.	725537.
1986	95477.	40492.	389060.	46067-	19792.	396760.	142145.	60283.	785820.
1987	95358.	36765.	425825.	50387-	19426.	416186.	145745.	56191.	842011.
1988	138358.	48387.	474212.	54398-	19066.	435252.	192736.	67553.	909564.
1989	87323.	27324.	502136.	58724-	18711.	453963.	146047.	46535.	956099.
1990	116628.	33783.	535919.	54730-	17302.	471265.	170358.	51085.	1007184.
1991	137733.	36270.	572188.	63912-	16830.	488095.	201645.	53099.	1060283.
1992	159417.	38283.	610471.	68385-	16371.	504466.	228302.	54654.	1114937.
1993	149015.	32430.	642901.	73172-	15924.	520390.	222187.	48354.	1163291.
1994	143099.	28470.	671371.	78294-	15490.	535881.	222193.	43960.	1207251.
1995	164239.	29540.	700910.	83775-	15008.	550948.	248014.	44608.	1251859.
1996	178683.	29210.	730126.	89639-	14657.	565605.	268322.	43873.	1295731.
1997	184869.	27480.	757606.	95914-	14257.	579862.	280783.	41737.	1337468.
1998	204242.	27594.	785206.	102628-	13868.	593730.	306870.	41468.	1378936.
1999	278861.	34208.	819413.	109812-	13490.	607220.	388273.	47698.	1426633.
2000	149341.	22252.	841675.	110881-	12383.	619603.	310222.	34645.	1461278.
2001	87419.	8926.	850601.	118643-	12045.	631648.	206562.	20971.	1482250.
2002	122990.	11351.	861952.	126948-	11717.	643365.	249925.	23067.	1505317.
2003	147409.	12368.	874320.	135834-	11397.	654762.	283243.	23766.	1529083.
2004	142719.	10886.	885207.	145342-	11080.	665849.	288061.	21973.	1551055.
2005	144898.	10046.	895254.	155516-	10784.	676633.	300414.	20832.	1571887.
2006	175674.	11074.	906329.	166402-	10490.	687123.	342077.	21564.	1593451.
2007	203527.	11064.	917393.	178051-	10204.	697326.	381577.	21868.	1615319.
2008	216327.	11270.	929263.	190514-	9926.	707252.	406841.	21196.	1636515.
2009	235000.	11180.	940431.	203850-	9655.	716907.	439656.	20823.	1657338.
2010	305930.	13172.	953604.	218120-	9392.	726298.	524049.	22564.	1679902.

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Table C.3 (Continued)

CASE 205. VOR-2ND//OMEGA. TRANS. TO OMEGA/DIFF OMEGA IN AKA AND AKA OS 1/12/78 PAGE 106

CUMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	64112.	58284.	58284.	101603.	92366.	92366.
1979	52641.	43505.	77587.	94326.	77955.	136239.	146966.	121460.	213826.
1980	68708.	51621.	129208.	110040.	82675.	218914.	178748.	134296.	348122.
1981	88467.	59058.	188266.	90452.	61780.	280694.	178919.	120838.	468960.
1982	73800.	45737.	234003.	56215.	34905.	315599.	129876.	80643.	549602.
1983	82113.	35061.	269065.	50110.	28286.	343885.	112223.	63347.	612950.
1984	75312.	38647.	307712.	41869.	21485.	365370.	117181.	60132.	673082.
1985	72979.	43375.	351087.	42587.	19867.	385238.	135566.	63242.	736324.
1986	100226.	42505.	393592.	45568.	19325.	404563.	145794.	61831.	798155.
1987	99527.	38372.	431964.	48758.	18798.	423361.	148285.	57170.	855325.
1988	142910.	50089.	482053.	52171.	18286.	441647.	195081.	68375.	923700.
1989	90741.	28913.	510966.	55823.	17787.	459433.	146564.	46700.	970400.
1990	113671.	32927.	543893.	59730.	17302.	476735.	173402.	50228.	1020628.
1991	135499.	35081.	579574.	63912.	16830.	493565.	199411.	52511.	1073139.
1992	158145.	37859.	617433.	68385.	16371.	509936.	226530.	54230.	1127369.
1993	146543.	31842.	649325.	73172.	15924.	525861.	219715.	47816.	1175185.
1994	140075.	27713.	677038.	78294.	15490.	541351.	218370.	43203.	1218389.
1995	160606.	28686.	705724.	83775.	15066.	556418.	244381.	43954.	1262343.
1996	180484.	29511.	735435.	89639.	14657.	571075.	270124.	44167.	1306510.
1997	166596.	27736.	763171.	95914.	14257.	585332.	282510.	41993.	1348503.
1998	201258.	27196.	790367.	102628.	13868.	599200.	303886.	41064.	1389568.
1999	209031.	32312.	822680.	109812.	13490.	612690.	372842.	45802.	1435370.
2000	209126.	23243.	845923.	110881.	12383.	625073.	319007.	35626.	1470996.
2001	95167.	9662.	855585.	118643.	12045.	637118.	213810.	21707.	1492703.
2002	127548.	11772.	867357.	126948.	11717.	648835.	254496.	23489.	1516192.
2003	151204.	12687.	880044.	135834.	11397.	660232.	287038.	24084.	1540276.
2004	142963.	10905.	890949.	145342.	11086.	671319.	288305.	21991.	1562267.
2005	140987.	9777.	900725.	155516.	10784.	682103.	296504.	20561.	1582828.
2006	170629.	10758.	911482.	166402.	10490.	692593.	337032.	21246.	1604074.
2007	204645.	11728.	923210.	178051.	10204.	702796.	382696.	21932.	1626006.
2008	217952.	11355.	934565.	190514.	9926.	712722.	408466.	21281.	1647287.
2009	237832.	11264.	945829.	203850.	9655.	722377.	441683.	20919.	1668206.
2010	300678.	12946.	958775.	218120.	9392.	731768.	518798.	22338.	1690543.

Table C.3 (Continued)

CASE 206. VOR-2ND//OMEGA. TRANS. TO OMEGA/DIFF OMEGA IN AKA AND AKA OS 1/12/78 PAGE 106

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	64112.	58284.	58284.	101603.	92366.	92366.
1979	52641.	43305.	77387.	94326.	77955.	136239.	146966.	121460.	213826.
1980	68708.	51621.	129209.	108181.	81278.	217516.	176888.	132899.	346724.
1981	80467.	54958.	184266.	96161.	60215.	277732.	176628.	119273.	465998.
1982	73000.	45737.	234003.	53441.	33183.	310914.	127101.	78920.	544918.
1983	62115.	35061.	269065.	46797.	26416.	337330.	108910.	61477.	606394.
1984	75312.	38047.	307712.	37954.	19177.	356806.	113266.	58123.	664518.
1985	87591.	40857.	348569.	43219.	20162.	376968.	130800.	61019.	725537.
1986	95477.	40492.	389060.	46667.	19792.	396760.	142145.	60283.	785820.
1987	95358.	36765.	425825.	50387.	19426.	416186.	145745.	56191.	842011.
1988	138338.	48487.	474312.	54395.	19066.	435252.	192736.	67553.	909564.
1989	87323.	27824.	502136.	58724.	18711.	453963.	146047.	46535.	956099.
1990	116626.	33763.	535919.	59730.	17302.	471265.	176356.	51085.	1007184.
1991	137733.	36270.	572188.	63912.	16830.	488095.	201645.	53099.	1060283.
1992	154917.	38285.	610471.	66385.	16371.	504466.	228302.	54654.	1114937.
1993	149015.	32430.	642901.	73172.	15924.	520390.	222187.	48354.	1163291.
1994	143899.	28470.	671371.	78294.	15490.	535881.	222193.	43960.	1207251.
1995	164234.	29540.	700910.	83775.	15068.	550948.	248014.	44608.	1251859.
1996	174085.	29210.	730126.	89639.	14657.	565605.	268322.	43873.	1295731.
1997	184984.	27436.	757606.	95914.	14257.	579862.	280783.	41737.	1337468.
1998	200750.	27129.	784735.	102628.	13868.	593730.	303386.	40997.	1378465.
1999	259358.	31601.	816596.	109812.	13490.	607220.	369170.	45351.	1423816.
2000	208406.	23274.	839870.	117499.	13122.	620342.	325904.	36396.	1460212.
2001	95378.	9683.	849554.	125724.	12764.	633106.	221102.	22448.	1482660.
2002	127954.	11310.	861364.	134524.	12416.	645522.	262484.	24226.	1506886.
2003	151948.	12716.	874080.	143941.	12077.	657600.	295489.	24793.	1531679.
2004	144019.	11031.	885111.	154017.	11748.	669348.	298036.	22779.	1554459.
2005	144520.	10022.	895132.	155516.	10784.	680132.	300037.	20806.	1575264.
2006	174091.	10775.	906107.	166402.	10490.	690622.	340494.	21465.	1596729.
2007	202376.	11598.	917704.	178051.	10204.	700826.	380421.	21801.	1618530.
2008	215587.	11232.	928936.	190514.	9926.	710751.	406101.	21157.	1639687.
2009	235383.	11194.	940080.	203850.	9655.	720406.	439233.	20803.	1660490.
2010	298314.	12844.	952929.	218120.	9392.	729797.	516433.	22236.	1682726.

Table C.3 (Continued)

CASE 300. VOR-2ND/OMEGA, TRANS. TO LORAN-C (EXCEPT OCEANIC). 1/8/78 PAGE 106

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	158379.	130892.	190576.	211020.	174396.	268163.
1980	68708.	51621.	129208.	178061.	133780.	324356.	246769.	185401.	453564.
1981	89840.	61362.	190570.	108734.	74267.	398623.	198574.	135628.	589193.
1982	76034.	47211.	237781.	76200.	47314.	445937.	152234.	94525.	683718.
1983	63934.	36089.	273870.	71947.	40612.	486549.	135880.	76701.	760419.
1984	77047.	39537.	313407.	65718.	33724.	520273.	142765.	73261.	833680.
1985	134577.	62781.	376188.	50508.	23562.	543835.	185085.	86343.	920023.
1986	124676.	52875.	429063.	54043.	22920.	566754.	178720.	75795.	995818.
1987	120108.	46330.	475393.	57826.	22295.	589049.	177994.	68624.	1064442.
1988	163581.	57334.	532727.	61874.	21687.	610736.	225455.	79021.	1143463.
1989	105395.	33582.	566309.	66205.	21095.	631831.	171600.	54677.	1198140.
1990	130601.	37831.	604140.	70840.	20520.	652350.	201441.	58350.	1256490.
1991	155035.	40825.	644965.	75799.	19960.	672311.	230832.	60785.	1317275.
1992	187748.	44945.	689910.	81104.	19416.	691726.	268853.	64361.	1381637.
1993	154093.	40064.	729974.	86782.	18886.	710613.	270875.	58950.	1440587.
1994	330231.	65334.	795309.	92857.	18371.	728984.	423088.	83706.	1524292.
1995	85713.	15416.	810725.	23558.	4237.	733221.	109271.	19653.	1543946.
1996	155242.	25383.	836108.	25207.	4122.	737342.	180449.	29505.	1573451.
1997	205194.	30501.	866609.	26972.	4009.	741352.	232166.	34510.	1607961.
1998	222778.	30104.	896713.	28860.	3900.	745251.	251638.	34004.	1641965.
1999	274162.	34294.	931007.	30880.	3793.	749045.	310042.	38087.	1680052.
2000	221912.	24783.	955790.	33041.	3690.	752735.	254953.	28473.	1708525.
2001	128159.	13009.	968799.	35354.	3589.	756324.	163493.	16599.	1725123.
2002	163201.	15063.	983862.	37829.	3491.	759816.	201030.	18554.	1743678.
2003	143927.	10272.	1000133.	40477.	3396.	763212.	234404.	19668.	1763345.
2004	181411.	13838.	1013971.	43311.	3304.	766516.	224722.	17141.	1780487.
2005	321659.	22305.	1036276.	46342.	3214.	769729.	368001.	25518.	1806005.
2006	103906.	6550.	1042826.	49586.	3126.	772855.	153493.	9676.	1815681.
2007	206775.	11850.	1054676.	53057.	3041.	775896.	259833.	14891.	1830572.
2008	306444.	15965.	1070641.	56771.	2958.	778853.	363216.	18923.	1849495.
2009	259549.	12293.	1082934.	60745.	2877.	781730.	320294.	15170.	1864665.
2010	325141.	14000.	1096934.	64998.	2799.	784529.	390139.	16798.	1881463.

Table C.3 (Continued)

CASE 301. VOR-2ND/OMEGA, TRANS. TO LORAN-C (EXCEPT OCEANIC). 1/8/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51621.	129208.	145924.	109635.	246489.	214632.	161256.	375697.
1981	80467.	59058.	188266.	132088.	90218.	336707.	212555.	149276.	524973.
1982	73660.	45737.	234003.	102059.	63371.	400078.	175719.	109108.	634081.
1983	62113.	35061.	269065.	100547.	56756.	456834.	162660.	91817.	725899.
1984	75312.	38647.	307712.	97317.	49959.	506773.	172629.	88586.	814484.
1985	141983.	66236.	373948.	50508.	23562.	530335.	192491.	89798.	904283.
1986	125175.	53086.	427034.	54043.	22920.	553255.	179218.	76006.	980289.
1987	125544.	48403.	475437.	57826.	22295.	575549.	183371.	70697.	1050986.
1988	183512.	64320.	539757.	61874.	21687.	597236.	245387.	86007.	1136993.
1989	834855.	266011.	805767.	66205.	21095.	618331.	901061.	287106.	1424098.
1990	33935.	9630.	815597.	16797.	4865.	623196.	50731.	14695.	1438793.
1991	38190.	10057.	825654.	17972.	4733.	627929.	56163.	14789.	1453583.
1992	44938.	10758.	836412.	19230.	4604.	632533.	64169.	15361.	1468944.
1993	53378.	11617.	848028.	20577.	4478.	637011.	73954.	16095.	1485039.
1994	65201.	12900.	860928.	22017.	4356.	641367.	87218.	17256.	1502294.
1995	78425.	14105.	875033.	23558.	4237.	645604.	101983.	18343.	1520637.
1996	123253.	20153.	895186.	25207.	4122.	649725.	148460.	24274.	1544911.
1997	132316.	19668.	914854.	26972.	4009.	653734.	159288.	23677.	1568589.
1998	246439.	33301.	948156.	28860.	3900.	657634.	275299.	37201.	1605790.
1999	304406.	37395.	985551.	30880.	3793.	661428.	335286.	41189.	1646978.
2000	1021932.	114128.	1099676.	33041.	3690.	665118.	1054974.	117818.	1764796.
2001	15471.	1571.	1101249.	35354.	3589.	668707.	50825.	5160.	1769956.
2002	50655.	5229.	1106478.	37829.	3491.	672199.	94484.	8720.	1778676.
2003	139344.	11692.	1118170.	40477.	3396.	675595.	179821.	15088.	1793764.
2004	45812.	3494.	1121664.	43311.	3304.	678899.	89122.	6798.	1800562.
2005	63678.	4416.	1126080.	46342.	3214.	682112.	110020.	7629.	1808192.
2006	81688.	5150.	1131229.	49586.	3126.	685238.	131274.	8275.	1816467.
2007	133008.	7626.	1138855.	53057.	3041.	688279.	186125.	10667.	1827134.
2008	143714.	7487.	1146342.	56771.	2958.	691236.	200486.	10445.	1837579.
2009	280535.	13287.	1159629.	60745.	2877.	694113.	341281.	16164.	1853743.
2010	356183.	15336.	1174965.	64998.	2799.	696912.	421181.	18135.	1871877.

Table C.3 (Continued)

CASE 302. VOR-2ND/OMEGA, TRANS. TO LORAN-C (EXCEPT OCEANIC). 1/8/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51621.	129208.	145924.	109635.	246489.	214632.	161256.	375697.
1981	86467.	59058.	188266.	132088.	90218.	336707.	218555.	149276.	524973.
1982	73660.	45737.	234003.	102059.	63371.	400078.	175719.	109108.	634081.
1983	62113.	35061.	269065.	100547.	56756.	456834.	162660.	91817.	725899.
1984	75312.	38647.	307712.	97317.	49939.	506773.	172629.	88586.	814484.
1985	141963.	66236.	373948.	50508.	23562.	530335.	192491.	89798.	904283.
1986	125175.	53086.	427034.	54043.	22920.	553255.	179218.	76006.	980289.
1987	120350.	46400.	473434.	57826.	22295.	575549.	178176.	68695.	1048983.
1988	163583.	57335.	530769.	61874.	21687.	597236.	225457.	79021.	1128005.
1989	105242.	33533.	564302.	66205.	21095.	618331.	171447.	54628.	1182633.
1990	130943.	37930.	602232.	70840.	20520.	638851.	201783.	58449.	1241082.
1991	156787.	41287.	643519.	75799.	19960.	658811.	232586.	61247.	1302330.
1992	186709.	44697.	688215.	81104.	19416.	678227.	267813.	64112.	1366442.
1993	183431.	39920.	728135.	86782.	18886.	697113.	270213.	58806.	1425248.
1994	333540.	65989.	794124.	92857.	18371.	715484.	426396.	84360.	1509608.
1995	83075.	14942.	809066.	23558.	4237.	719721.	106633.	19179.	1528787.
1996	153767.	25142.	834208.	25207.	4122.	723843.	178974.	29264.	1558051.
1997	205087.	30485.	864693.	26972.	4009.	727852.	232059.	34494.	1592545.
1998	222707.	30045.	894738.	28860.	3900.	731752.	251567.	33994.	1626539.
1999	279018.	34276.	929064.	30880.	3793.	735545.	309898.	38070.	1664609.
2000	221660.	24755.	953818.	33041.	3690.	739235.	254702.	28445.	1693054.
2001	128759.	13072.	966891.	35354.	3589.	742825.	164113.	16662.	1709715.
2002	105609.	15285.	982176.	37829.	3491.	746316.	203438.	18777.	1728492.
2003	192800.	16177.	998353.	40477.	3396.	749712.	233277.	19573.	1748065.
2004	180318.	13754.	1012107.	43311.	3304.	753016.	223629.	17058.	1765123.
2005	324294.	22488.	1034595.	46342.	3214.	756229.	370636.	25701.	1790824.
2006	101172.	6378.	1040972.	49586.	3126.	759355.	150759.	9504.	1800328.
2007	205846.	11797.	1052769.	53057.	3041.	762396.	258903.	14837.	1815165.
2008	307907.	16042.	1068811.	56771.	2958.	765354.	364678.	18999.	1834164.
2009	259336.	12283.	1081093.	60745.	2877.	768231.	320082.	15160.	1849324.
2010	324820.	13986.	1095079.	64998.	2799.	771029.	389817.	16784.	1866109.

Table C.3 (Continued)

CASE 303. VOR-2ND/OMEGA. TRANS. TO LORAN-C (EXCEPT OCEANIC). 1/8/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51621.	129208.	106282.	79851.	216705.	174989.	131472.	345913.
1981	86467.	59058.	188266.	88161.	60215.	276920.	174628.	119273.	465186.
1982	73000.	45737.	234003.	53441.	33183.	310103.	127101.	78920.	544106.
1983	62113.	35061.	269065.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38647.	307712.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87581.	40857.	348569.	96212.	44883.	400878.	183793.	85741.	749447.
1986	95477.	40492.	389060.	105064.	44558.	445436.	200541.	85049.	834496.
1987	95356.	36765.	425825.	114685.	44216.	489652.	210043.	80981.	915477.
1988	138338.	48487.	474312.	125138.	43860.	533512.	263475.	92347.	1007824.
1989	87323.	27824.	502136.	136492.	43490.	577002.	223815.	71314.	1079138.
1990	175253.	50765.	552900.	70840.	20520.	597522.	246093.	71284.	1150422.
1991	170600.	44924.	597825.	75799.	19960.	617482.	246399.	64884.	1215307.
1992	196150.	46957.	644781.	81104.	19416.	636898.	277254.	66372.	1281679.
1993	205537.	44731.	689512.	86762.	18886.	655784.	292318.	63617.	1345296.
1994	1162514.	229997.	919509.	92857.	18371.	674155.	1255371.	248368.	1593665.
1995	48456.	8356.	927865.	23558.	4237.	678393.	70014.	12593.	1606257.
1996	52077.	8515.	936380.	25207.	4122.	682514.	77284.	12637.	1618894.
1997	57989.	8620.	944999.	26972.	4009.	686523.	84960.	12629.	1631523.
1998	75632.	10220.	955220.	28860.	3900.	690423.	104492.	14120.	1645643.
1999	88394.	10859.	966079.	30880.	3793.	694217.	119274.	14652.	1660295.
2000	95399.	10654.	976733.	33041.	3690.	697907.	128440.	14344.	1674639.
2001	-52986.	-5380.	971353.	35354.	3589.	701496.	-17633.	-1790.	1672849.
2002	81059.	7481.	978834.	37829.	3491.	704987.	118888.	10973.	1683822.
2003	210604.	17671.	996505.	40477.	3396.	708384.	251081.	21067.	1704889.
2004	192951.	14718.	1011223.	43311.	3304.	711687.	236261.	18021.	1722910.
2005	1236052.	85754.	1096977.	46342.	3214.	714901.	1282995.	88967.	1811878.
2006	83451.	5261.	1102237.	49586.	3126.	718027.	133037.	8387.	1820264.
2007	133356.	7042.	1109680.	53057.	3041.	721067.	186413.	10683.	1830947.
2008	253338.	13199.	1123078.	56771.	2958.	724025.	310110.	16156.	1847103.
2009	92054.	4360.	1127438.	60745.	2877.	726902.	152799.	7237.	1854340.
2010	103638.	4462.	1131901.	64998.	2799.	729701.	168636.	7261.	1861601.

Table C.3 (Continued)

CASE 304. VOR-2ND/OMEGA, TRANS. TO LORAN-C (EXCEPT OCEANIC). 1/8/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51021.	129208.	106282.	79851.	216705.	174989.	131472.	345913.
1981	86467.	59058.	188266.	88161.	60215.	276920.	174628.	119273.	465186.
1982	73660.	45737.	234003.	53441.	33183.	310103.	127101.	78920.	544106.
1983	62113.	35061.	269065.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38647.	307712.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87581.	40857.	348569.	96212.	44883.	400878.	183793.	85741.	749447.
1986	95477.	40492.	389060.	105064.	44558.	445436.	200541.	85049.	834496.
1987	95358.	36765.	425825.	114685.	44216.	489652.	210043.	80981.	915477.
1988	138338.	48487.	474312.	125138.	43860.	533512.	263475.	92347.	1007824.
1989	87323.	27824.	502136.	136492.	43490.	577002.	223815.	71314.	1079138.
1990	174430.	50526.	552662.	70840.	20520.	597522.	245270.	71046.	1150184.
1991	170078.	44787.	597449.	75799.	19960.	617482.	245877.	64747.	1214931.
1992	190901.	45700.	643149.	81104.	19416.	636898.	272005.	65116.	1280047.
1993	173741.	37811.	680960.	86782.	18886.	655784.	260523.	56697.	1336744.
1994	165059.	32656.	713616.	92857.	18371.	674155.	257915.	51027.	1387771.
1995	188327.	33872.	747488.	99356.	17870.	692026.	287683.	51742.	1439514.
1996	203901.	33339.	780827.	106311.	17383.	709408.	310212.	50722.	1490236.
1997	213279.	31703.	812530.	113753.	16909.	726317.	327033.	48611.	1538847.
1998	243601.	32918.	845448.	121716.	16448.	742765.	365317.	49366.	1588213.
1999	519246.	63787.	909235.	130236.	15999.	758764.	649482.	79786.	1667999.
2000	101689.	11356.	920592.	33041.	3690.	762454.	134730.	15046.	1683045.
2001	40532.	4115.	924707.	35354.	3589.	766043.	75886.	7704.	1690750.
2002	130807.	12073.	936780.	37829.	3491.	769534.	168636.	15564.	1706314.
2003	187323.	14039.	950819.	40477.	3396.	772931.	207800.	17436.	1723750.
2004	168119.	12824.	963643.	43311.	3304.	776234.	211430.	16127.	1739877.
2005	175837.	12193.	975836.	46342.	3214.	779446.	222180.	15407.	1755284.
2006	222643.	14035.	989871.	49586.	3126.	782574.	272229.	17161.	1772445.
2007	247100.	14161.	1004032.	53057.	3041.	785614.	300157.	17202.	1789646.
2008	257508.	13416.	1017448.	56771.	2958.	788572.	314279.	16374.	1806020.
2009	278055.	13169.	1030617.	60745.	2877.	791449.	338800.	16046.	1822066.
2010	521618.	22459.	1053076.	64998.	2799.	794248.	586616.	25258.	1847324.

Table C.3 (Continued)

CASE 305. VOR-2ND/OMEGA. TRANS. TO LORAN-C (EXCEPT OCEANIC). 1/12/78 PAGE 106

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65053.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	66708.	51021.	129208.	145924.	109635.	246489.	214632.	161256.	375697.
1981	86467.	59058.	188266.	132066.	90218.	336707.	218555.	149276.	524973.
1982	73060.	45737.	234003.	102059.	63371.	400078.	175719.	109108.	634081.
1983	62113.	35061.	269065.	100547.	56756.	456834.	162660.	91817.	725899.
1984	75312.	38647.	307712.	97317.	49939.	506773.	172629.	88586.	814484.
1985	141983.	66236.	373948.	50508.	23562.	530335.	192491.	89798.	904283.
1986	125175.	53060.	427034.	54043.	22920.	553255.	179218.	76006.	980289.
1987	120316.	46556.	473422.	57426.	22295.	575549.	178145.	68682.	1048971.
1988	163562.	57328.	530749.	61874.	21687.	597236.	225437.	79014.	1127985.
1989	165223.	53527.	584277.	66205.	21095.	618331.	171429.	54622.	1182608.
1990	130060.	37640.	621924.	70640.	20520.	638851.	201500.	58367.	1240975.
1991	156573.	41231.	663155.	75799.	19960.	658811.	232372.	61191.	1302166.
1992	165247.	40347.	687701.	81104.	19416.	678227.	246351.	63762.	1365928.
1993	161330.	35110.	722812.	86782.	18886.	697113.	248112.	53996.	1419924.
1994	95419.	18578.	741390.	92857.	18371.	715484.	188275.	37249.	1457174.
1995	105594.	18992.	760382.	99356.	17870.	733354.	204951.	36862.	1494036.
1996	254260.	41574.	802255.	106311.	17383.	750737.	360572.	58956.	1552992.
1997	201611.	30917.	841172.	113753.	16909.	767646.	375564.	55825.	1608818.
1998	276914.	37420.	878591.	121716.	16448.	784093.	398630.	53867.	1662685.
1999	333517.	43428.	922020.	130236.	15999.	800092.	483753.	59427.	1722112.
2000	236439.	26985.	948455.	33041.	3690.	803782.	269480.	30095.	1752207.
2001	117100.	11884.	960313.	35354.	3589.	807372.	152454.	15478.	1767685.
2002	151504.	13983.	974296.	37829.	3491.	810863.	189333.	17475.	1785159.
2003	182040.	15324.	989621.	40477.	3396.	814259.	223117.	18721.	1803880.
2004	159467.	12202.	1001823.	43311.	3304.	817563.	203276.	15506.	1819386.
2005	88568.	6142.	1007964.	46342.	3214.	820776.	134911.	9355.	1828741.
2006	108741.	6855.	1014819.	49586.	3126.	823902.	158326.	9981.	1838722.
2007	295318.	16924.	1031744.	53057.	3041.	826943.	348376.	19965.	1858687.
2008	310776.	16191.	1047935.	56771.	2958.	829901.	367547.	19149.	1877835.
2009	334242.	15635.	1063770.	60745.	2877.	832778.	395088.	18712.	1896548.
2010	399965.	17221.	1080991.	64998.	2799.	835576.	464963.	20020.	1916567.

Table C.3 (Continued)

CASE 306. VOR-2ND/OMEGA. TRANS. TO LORAN-C (EXCEPT OCEANIC). 1/11/78 PAGE 122

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	82641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51621.	129208.	106282.	79851.	216705.	174989.	131472.	345913.
1981	86467.	59058.	188266.	68161.	60215.	276920.	174628.	119273.	465186.
1982	73600.	45737.	234003.	53441.	33183.	310103.	127101.	78920.	544106.
1983	62113.	35061.	269065.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38647.	307712.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87581.	40857.	348569.	96212.	44883.	400878.	183793.	85741.	749447.
1986	95477.	40492.	389060.	105064.	44558.	445436.	200541.	85049.	834496.
1987	95356.	36765.	425825.	114085.	44216.	489652.	210043.	80981.	915477.
1988	138338.	48487.	474312.	125138.	43860.	533512.	263475.	92347.	1007824.
1989	87323.	27624.	502136.	134892.	43490.	577002.	223815.	71314.	1079138.
1990	174430.	50520.	552662.	70840.	20520.	597522.	245269.	71046.	1150184.
1991	170078.	44787.	597449.	75799.	19960.	617482.	245877.	64747.	1214931.
1992	190900.	45700.	643149.	81104.	19416.	636898.	272005.	65116.	1280047.
1993	173741.	37811.	680960.	86782.	18886.	655784.	260523.	56697.	1336744.
1994	165059.	32056.	713016.	92857.	18371.	674155.	257915.	51027.	1387771.
1995	188327.	33872.	747488.	99356.	17870.	692026.	287683.	51742.	1439513.
1996	203901.	33339.	780827.	106311.	17383.	709408.	310212.	50722.	1490236.
1997	213279.	31705.	812530.	113753.	16909.	726317.	327033.	48611.	1538847.
1998	231844.	31324.	843859.	121716.	16448.	742765.	353560.	47777.	1586624.
1999	292247.	35901.	879760.	130236.	15999.	758764.	422483.	51900.	1638524.
2000	236670.	26431.	906191.	139353.	15563.	774326.	376023.	41994.	1680518.
2001	120818.	12266.	918457.	149107.	15138.	789464.	269926.	27404.	1707922.
2002	159351.	14707.	933165.	159545.	14725.	804190.	318896.	29433.	1737355.
2003	188917.	15851.	949016.	170713.	14324.	818514.	359630.	30175.	1767530.
2004	177177.	13515.	962531.	182663.	13933.	832447.	359839.	27448.	1794977.
2005	174710.	12115.	974646.	46342.	3214.	835660.	221059.	15329.	1810306.
2006	208641.	13153.	987799.	49586.	3126.	838786.	258227.	16279.	1826585.
2007	238588.	13673.	1001472.	53057.	3041.	841827.	291645.	16714.	1843298.
2008	253090.	13186.	1014657.	56771.	2958.	844784.	309862.	16143.	1859442.
2009	275651.	13055.	1027713.	60745.	2877.	847661.	336396.	15933.	1875374.
2010	340751.	14672.	1042385.	64996.	2799.	850460.	405748.	17470.	1892845.

Table C.3 (Continued)

CASE 400. YOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). PAGE 105

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51621.	129208.	114161.	85771.	222625.	182869.	137392.	351833.
1981	86467.	59058.	188266.	97060.	66307.	288932.	183547.	125365.	477198.
1982	73600.	45757.	234003.	63506.	39432.	328364.	137106.	85169.	562367.
1983	62113.	35061.	269065.	58124.	32810.	361174.	120237.	67871.	630238.
1984	75312.	38647.	307712.	50672.	26003.	387176.	125984.	64650.	694888.
1985	311321.	145234.	452945.	43807.	20436.	407613.	355128.	165670.	860558.
1986	267557.	113470.	566416.	46873.	19879.	427491.	314430.	133349.	993907.
1987	251564.	96989.	663404.	50154.	19337.	446828.	301718.	116325.	1110232.
1988	329005.	115314.	778718.	53665.	18809.	465637.	382670.	134123.	1244356.
1989	211034.	67242.	845960.	57422.	18296.	483934.	268455.	85538.	1329894.
1990	256115.	74187.	920148.	61441.	17797.	501731.	317557.	91985.	1421879.
1991	299905.	78974.	999122.	65742.	17312.	519043.	365648.	96286.	1518165.
1992	350608.	85848.	1084970.	70344.	16840.	535883.	420952.	102688.	1620853.
1993	354337.	77114.	1162084.	75268.	16381.	552264.	429605.	93495.	1714348.
1994	647933.	128190.	1290274.	80537.	15934.	568198.	728470.	144124.	1858472.
1995	155202.	27925.	1318199.	6287.	1131.	569328.	161549.	29056.	1887528.
1996	292662.	47855.	1366052.	6727.	1100.	570428.	299389.	48952.	1936480.
1997	391744.	58230.	1424282.	7198.	1070.	571498.	398941.	59300.	1995780.
1998	425340.	57476.	1481758.	7701.	1041.	572539.	433041.	58517.	2054297.
1999	533404.	65527.	1547285.	8241.	1012.	573551.	541645.	66539.	2120836.
2000	423079.	47249.	1594534.	8817.	985.	574536.	431896.	48233.	2169069.
2001	247502.	25107.	1619641.	9435.	958.	575494.	256736.	26065.	2195135.
2002	318345.	29382.	1649023.	10095.	932.	576425.	328440.	30314.	2225448.
2003	371113.	31138.	1680162.	10802.	906.	577332.	381915.	32045.	2257493.
2004	347383.	26498.	1706659.	11558.	882.	578213.	358940.	27379.	2284872.
2005	624018.	43272.	1749931.	12367.	858.	579071.	636385.	44129.	2329001.
2006	194331.	12250.	1762181.	13233.	834.	579905.	207563.	13085.	2342086.
2007	347780.	22796.	1784977.	14159.	811.	580716.	411939.	23608.	2365694.
2008	600511.	31266.	1816263.	15150.	789.	581506.	615661.	32075.	2397769.
2009	494720.	23431.	1839694.	16210.	768.	582273.	510931.	24199.	2421968.
2010	622641.	26809.	1866503.	17345.	747.	583020.	639986.	27556.	2449523.

Table C.3 (Continued)

CASE 801. VOR=2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/8/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51621.	129208.	114161.	85771.	222625.	182869.	137392.	351833.
1981	88467.	59058.	188266.	97080.	66307.	288932.	183547.	125365.	477198.
1982	73000.	45737.	234003.	63506.	39432.	328364.	137166.	85169.	562367.
1983	62113.	35001.	269065.	58124.	32810.	361174.	120237.	67871.	630238.
1984	75312.	38647.	307712.	50672.	26003.	387176.	125984.	64650.	694888.
1985	311321.	145234.	452945.	43807.	20436.	407613.	355128.	165670.	860558.
1986	267557.	113470.	566416.	46873.	19879.	427491.	314430.	133349.	993907.
1987	262599.	101243.	667659.	50154.	19337.	446828.	312754.	120580.	1114487.
1988	370961.	130020.	797679.	53665.	18809.	465637.	424627.	148829.	1263316.
1989	1034403.	520771.	1318450.	57422.	18296.	483934.	1691824.	539067.	1802384.
1990	61003.	17844.	1336294.	4482.	1298.	485232.	66086.	19143.	1821526.
1991	69278.	18243.	1354537.	4796.	1263.	486495.	74074.	19506.	1841032.
1992	82688.	19795.	1374332.	5132.	1229.	487724.	87820.	21023.	1862056.
1993	99051.	21556.	1395888.	5491.	1195.	488919.	104542.	22751.	1884807.
1994	122051.	24147.	1420035.	5875.	1162.	490081.	127926.	25309.	1910116.
1995	140452.	26341.	1446376.	6287.	1131.	491212.	152739.	27471.	1937588.
1996	235358.	38683.	1485059.	6727.	1100.	492312.	242085.	39583.	1977171.
1997	252844.	37584.	1522643.	7198.	1070.	493382.	260042.	38654.	2015824.
1998	472128.	63799.	1586241.	7701.	1041.	494422.	479827.	64839.	2080664.
1999	583420.	71671.	1657912.	8241.	1012.	495435.	591661.	72683.	2153347.
2000	1965446.	219497.	1877410.	8817.	985.	496419.	1974264.	220482.	2373829.
2001	20934.	2734.	1880144.	9435.	958.	497377.	30368.	3692.	2377521.
2002	110452.	10194.	1890338.	10095.	932.	498309.	120547.	11126.	2388647.
2003	282052.	23666.	1914004.	10802.	906.	499215.	292853.	24572.	2413219.
2004	80412.	6591.	1920595.	11558.	882.	500097.	97970.	7473.	2420692.
2005	120256.	8339.	1928934.	12367.	858.	500954.	132622.	9196.	2429889.
2006	154774.	9757.	1938691.	13233.	834.	501788.	168006.	10591.	2440480.
2007	253564.	14533.	1953224.	14159.	811.	502600.	267743.	15344.	2455823.
2008	273813.	14265.	1967489.	15150.	789.	503389.	288963.	15055.	2470878.
2009	535643.	25369.	1992858.	16210.	768.	504157.	551854.	26137.	2497015.
2010	684473.	29471.	2022330.	17345.	747.	504904.	701818.	30218.	2527233.

Table C.3 (Continued)

CASE 402. VOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/8/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51021.	129208.	106282.	79851.	216705.	174989.	131472.	345913.
1981	86467.	59058.	188266.	88161.	60215.	276920.	174628.	119273.	465186.
1982	73000.	45737.	234003.	53441.	33183.	310103.	127101.	78920.	544106.
1983	62113.	35061.	269065.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38647.	307712.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87581.	40857.	348569.	51062.	24101.	380096.	139243.	64958.	728665.
1986	95477.	40492.	389060.	55963.	23734.	403830.	151440.	64225.	792890.
1987	95358.	36765.	425825.	60612.	23368.	427198.	155970.	60133.	853023.
1988	138338.	48467.	474312.	65638.	23006.	450204.	203975.	71492.	924515.
1989	87323.	27824.	502136.	71070.	22645.	472849.	158393.	50469.	974984.
1990	340101.	113016.	615151.	61441.	17797.	490646.	451602.	130813.	1105797.
1991	366103.	96400.	711558.	65742.	17312.	507958.	431845.	113718.	1219516.
1992	408501.	97792.	809350.	70344.	16840.	524798.	478846.	114632.	1334148.
1993	423728.	92216.	901565.	75268.	16381.	541179.	498997.	108596.	1442744.
1994	2280756.	451239.	1352801.	80537.	15934.	557112.	2361294.	467169.	1909913.
1995	82120.	14770.	1367571.	6287.	1131.	558243.	88406.	15901.	1925814.
1996	94203.	15315.	1382884.	6727.	1100.	559343.	100990.	16513.	1942327.
1997	106045.	15763.	1398746.	7198.	1070.	560413.	113242.	16833.	1959159.
1998	140035.	18923.	1417669.	7701.	1041.	561454.	147737.	19964.	1979123.
1999	164017.	20149.	1437818.	8241.	1012.	562466.	172258.	21161.	2000284.
2000	178326.	19915.	1457734.	8817.	985.	563451.	187146.	20900.	2021184.
2001	-105760.	-10734.	1446994.	9435.	956.	564409.	-96345.	-9782.	2011403.
2002	152172.	14045.	1461039.	10095.	932.	565340.	162267.	14977.	2026379.
2003	403303.	33839.	1494878.	10802.	906.	566247.	414105.	34746.	2061125.
2004	369469.	28182.	1523061.	11558.	882.	567128.	381027.	29064.	2090189.
2005	2381259.	165124.	1688185.	12367.	858.	567986.	2393626.	165982.	2256171.
2006	180733.	10133.	1698318.	13233.	834.	568820.	173965.	10967.	2267138.
2007	201925.	15011.	1713328.	14159.	811.	569631.	276084.	15822.	2282960.
2008	510556.	26599.	1739928.	15150.	789.	570421.	525706.	27389.	2310348.
2009	171563.	8120.	1748053.	16210.	768.	571188.	187773.	8893.	2319242.
2010	194971.	8395.	1756448.	17345.	747.	571935.	212316.	9142.	2328383.

Table C.3 (Continued)

CASE 003. VOR+2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/6/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52041.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51621.	129208.	106282.	79851.	216705.	174989.	131472.	345913.
1981	80467.	59058.	188266.	88161.	60215.	276920.	170628.	119273.	465186.
1982	73660.	45737.	234003.	53441.	33183.	310103.	127101.	78920.	544106.
1983	62113.	35081.	269065.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38647.	307712.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87581.	40857.	348569.	51662.	24101.	380096.	139243.	64958.	728065.
1986	95477.	40492.	389060.	55963.	23734.	403830.	151440.	64225.	792890.
1987	95358.	36785.	425825.	60612.	23368.	427198.	155970.	60133.	853023.
1988	138338.	48487.	474312.	65638.	23006.	450204.	203975.	71492.	924515.
1989	87323.	27824.	502136.	71070.	22645.	472849.	158393.	50469.	974984.
1990	356334.	112487.	614622.	61441.	17797.	490646.	449776.	130284.	1105268.
1991	365035.	96125.	710747.	65742.	17312.	507956.	430777.	113437.	1218705.
1992	397388.	95132.	805879.	70344.	16840.	524798.	467732.	111971.	1330677.
1993	356839.	77658.	883537.	75268.	16381.	541179.	432107.	94039.	1424716.
1994	352731.	65529.	949366.	80537.	15934.	557112.	413268.	81763.	1506479.
1995	366451.	65910.	1015276.	86175.	15499.	572612.	452626.	81409.	1587888.
1996	390609.	63868.	1079143.	92207.	15077.	587688.	482816.	78944.	1666832.
1997	408922.	60784.	1139927.	98661.	14665.	602354.	507583.	75449.	1742281.
1998	466682.	63333.	1203260.	105568.	14265.	616619.	572250.	77599.	1819880.
1999	1009388.	123999.	1327260.	112958.	13876.	630496.	1122345.	137876.	1957755.
2000	140233.	21245.	1348505.	8817.	985.	631480.	199050.	22230.	1979985.
2001	72429.	7353.	1355858.	9435.	958.	632438.	81864.	8311.	1988296.
2002	240167.	22720.	1378578.	10095.	932.	633370.	256262.	23652.	2011948.
2003	318118.	26692.	1405270.	10802.	906.	634276.	328919.	27598.	2039546.
2004	322007.	24562.	1429832.	11556.	882.	635158.	333565.	25444.	2064990.
2005	337817.	23425.	1453257.	12367.	858.	636015.	350184.	24283.	2089273.
2006	428938.	27040.	1480297.	13233.	834.	636849.	442170.	27874.	2117147.
2007	476080.	27283.	1507581.	14159.	811.	637661.	490239.	28095.	2145242.
2008	495874.	25834.	1533415.	15150.	789.	638450.	511024.	26624.	2171865.
2009	533608.	25273.	1558688.	16210.	768.	639218.	549818.	26041.	2197906.
2010	1004608.	43255.	1601943.	17345.	747.	639965.	1021953.	44002.	2241908.

Table C.3 (Continued)

CASE 404. VOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/8/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51821.	129208.	106282.	79851.	216705.	174989.	131472.	345913.
1981	80467.	59058.	188266.	88161.	60215.	276920.	174628.	119273.	465186.
1982	73660.	45737.	234003.	53441.	33183.	310103.	127101.	78920.	544106.
1983	62113.	35061.	269065.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38647.	307712.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87581.	40857.	348569.	40611.	18945.	374940.	128192.	59803.	723509.
1986	95477.	40492.	389060.	43454.	18429.	393369.	138931.	58920.	782429.
1987	95358.	36765.	425825.	46496.	17926.	411295.	141854.	54691.	837120.
1988	138338.	48487.	474312.	49750.	17437.	428732.	188088.	65924.	903044.
1989	87323.	27824.	502136.	53233.	16962.	445694.	140556.	44785.	947830.
1990	109630.	31756.	533891.	72459.	20989.	466683.	182089.	52745.	1000574.
1991	131353.	34589.	568481.	78491.	20669.	487352.	209843.	55258.	1055832.
1992	153387.	36720.	605200.	85011.	20351.	507703.	238398.	57071.	1112903.
1993	143347.	31197.	636397.	92060.	20035.	527738.	235408.	51232.	1164135.
1994	138988.	27498.	663895.	99680.	19721.	547459.	238667.	47219.	1211354.
1995	532448.	95765.	759660.	86175.	15499.	562958.	618623.	111265.	1322618.
1996	470637.	76953.	836613.	92207.	15077.	578035.	562844.	92030.	1414648.
1997	463148.	68844.	905457.	98661.	14665.	592700.	561809.	83509.	1498157.
1998	548954.	74180.	979638.	105568.	14265.	606966.	654521.	88446.	1586603.
1999	3259022.	400235.	1379873.	112958.	13876.	620842.	3370980.	414111.	2000714.
2000	96219.	10746.	1390618.	8817.	985.	621827.	105036.	11730.	2012445.
2001	-306507.	-31118.	1359500.	9435.	958.	622784.	-297072.	-30160.	1982284.
2002	-292743.	-26101.	1333399.	10095.	932.	623716.	-272698.	-25169.	1957115.
2003	-254543.	-21358.	1312042.	10802.	906.	624622.	-243741.	-20451.	1936664.
2004	-220151.	-17250.	1294791.	11558.	882.	625504.	-214593.	-16369.	1920296.
2005	-189860.	-13166.	1281626.	12367.	858.	626362.	-177493.	-12308.	1907988.
2006	372044.	23453.	1305079.	13233.	834.	627196.	385276.	24288.	1932275.
2007	524805.	30076.	1335155.	14159.	811.	628007.	538964.	30887.	1963162.
2008	530816.	27655.	1362810.	15150.	789.	628797.	545966.	28444.	1991606.
2009	600276.	28431.	1391240.	16210.	768.	629564.	616487.	29198.	2020805.
2010	3495516.	150506.	1541746.	17345.	747.	630311.	3512861.	151252.	2172057.

Table C.3 (Continued)

CASE 409. VOR+2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 178/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51821.	129208.	114161.	85771.	222625.	182869.	137392.	351833.
1981	80467.	59058.	188266.	97080.	66307.	288932.	183547.	125365.	477198.
1982	73660.	45737.	234003.	63506.	39432.	328364.	137166.	85169.	562367.
1983	62113.	35061.	269065.	58124.	32810.	361174.	120237.	67871.	630238.
1984	75312.	38647.	307712.	50672.	26003.	387176.	125984.	64650.	694888.
1985	208281.	97165.	404876.	43807.	20436.	407613.	252088.	117601.	812489.
1986	177809.	75408.	480285.	46873.	19879.	427491.	224682.	95287.	907776.
1987	168146.	64828.	545112.	50154.	19337.	446828.	218301.	84164.	991940.
1988	256562.	89923.	635035.	53665.	18809.	465637.	310227.	108733.	1100673.
1989	849631.	270719.	905754.	57422.	18296.	483934.	907053.	289015.	1389688.
1990	45625.	13219.	918970.	57971.	16792.	500726.	103596.	30008.	1419696.
1991	56014.	14908.	933878.	62029.	16334.	517060.	118643.	31242.	1450939.
1992	72010.	17239.	951117.	66371.	15889.	532949.	138382.	33127.	1484066.
1993	77378.	16840.	967957.	71017.	15455.	548404.	148396.	32295.	1516361.
1994	89999.	17806.	985763.	75988.	15034.	563436.	165988.	32840.	1549201.
1995	111657.	20082.	1005845.	81308.	14624.	578062.	192964.	34706.	1583907.
1996	175405.	28680.	1034525.	86999.	14225.	592287.	262404.	42905.	1626813.
1997	184899.	27484.	1062009.	93089.	13837.	606124.	277988.	41321.	1668134.
1998	265971.	38562.	1100572.	99605.	13460.	619584.	384976.	52022.	1720156.
1999	371539.	45642.	1146214.	106578.	13093.	632677.	478116.	58735.	1778890.
2000	960616.	107280.	1253493.	114038.	12736.	645412.	1074654.	120015.	1898906.
2001	17520.	1779.	1255272.	122021.	12386.	657801.	139541.	14167.	1913073.
2002	102917.	9499.	1264771.	130562.	12050.	669851.	233479.	21549.	1934622.
2003	276175.	23173.	1287944.	139702.	11722.	681573.	415876.	34894.	1969516.
2004	68355.	5214.	1293157.	149481.	11402.	692975.	217836.	16616.	1986132.
2005	87409.	6061.	1299219.	159944.	11091.	704066.	247353.	17152.	2003284.
2006	116110.	7320.	1306538.	171141.	10789.	714854.	287251.	18108.	2021393.
2007	182633.	10466.	1317005.	183120.	10494.	725349.	365753.	20961.	2042353.
2008	193403.	10076.	1327081.	195939.	10208.	735557.	389342.	20284.	2062638.
2009	314028.	14902.	1341982.	209655.	9930.	745487.	524282.	24831.	2087469.
2010	433722.	18075.	1360057.	224330.	9659.	755146.	658052.	28334.	2115802.

Table C.3 (Continued)

CASE 406. VOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/8/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51821.	129208.	106282.	79851.	216705.	174989.	131472.	345913.
1981	66467.	45056.	188266.	88161.	60215.	276920.	174628.	119273.	465186.
1982	73660.	45737.	234003.	53441.	33183.	310103.	127101.	78920.	544106.
1983	62113.	35061.	269065.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38647.	307712.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87581.	40857.	348569.	51062.	24101.	380096.	139243.	64958.	728665.
1986	95477.	40492.	389060.	55963.	23734.	403830.	151440.	64225.	792890.
1987	95358.	36765.	425825.	60612.	23368.	427198.	155970.	60133.	853023.
1988	138338.	48487.	474312.	65638.	23006.	450204.	203975.	71492.	924515.
1989	87323.	27824.	502136.	71070.	22645.	472849.	158393.	50469.	974984.
1990	261723.	75812.	577947.	61441.	17797.	490646.	323164.	93609.	1068594.
1991	235629.	62101.	640049.	65742.	17312.	507958.	301572.	79413.	1148007.
1992	257705.	61092.	701741.	70344.	16840.	524796.	328049.	78532.	1226539.
1993	287338.	62533.	764274.	75268.	16381.	541179.	362607.	78914.	1305453.
1994	1248013.	247032.	1011306.	80537.	15934.	557112.	1329150.	262965.	1568418.
1995	61527.	11000.	1022372.	81308.	14624.	571736.	142835.	25690.	1594108.
1996	72335.	11627.	1034200.	86999.	14225.	585961.	159334.	26052.	1620161.
1997	82439.	12254.	1046454.	93089.	13837.	599799.	175529.	26091.	1646252.
1998	107190.	14485.	1060938.	99605.	13460.	613258.	206796.	27944.	1674197.
1999	132022.	16216.	1077157.	106578.	13093.	626351.	238600.	29311.	1703508.
2000	130686.	14595.	1091751.	114038.	12736.	639086.	244724.	27330.	1730838.
2001	-42864.	-4352.	1087400.	122021.	12388.	651475.	79156.	8036.	1738874.
2002	41129.	3411.	1090810.	130562.	12050.	663525.	221691.	20461.	1759336.
2003	222569.	18675.	1111485.	139702.	11722.	675247.	362271.	30397.	1789732.
2004	206329.	15738.	1130223.	149481.	11402.	686649.	355809.	27140.	1816872.
2005	1155477.	80125.	1210348.	159944.	11091.	697740.	1315421.	91216.	1908088.
2006	155507.	9416.	1219764.	171141.	10789.	708529.	304648.	19205.	1927293.
2007	230513.	13210.	1231975.	183120.	10494.	719023.	413634.	23705.	1950998.
2008	480331.	25025.	1256999.	195939.	10208.	729231.	676270.	35233.	1986230.
2009	132922.	6295.	1263295.	209655.	9930.	739161.	342576.	16225.	2002456.
2010	157160.	6767.	1270062.	224330.	9659.	748820.	381490.	16426.	2018881.

Table C.3 (Continued)

CASE 407. VOR+2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/6/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51621.	129208.	106282.	79851.	216705.	174989.	131472.	345913.
1981	86467.	59058.	188266.	88161.	60215.	276920.	174628.	119273.	465186.
1982	73000.	45737.	234003.	53441.	33183.	310103.	127101.	78920.	544106.
1983	62113.	35061.	269065.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38647.	307712.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87581.	40857.	348569.	51662.	24101.	380096.	139243.	64958.	728665.
1986	95477.	40492.	389060.	55963.	23734.	403830.	151440.	64225.	792890.
1987	95358.	36765.	425825.	60612.	23368.	427198.	155970.	60133.	853023.
1988	138338.	48467.	474312.	65038.	23006.	450204.	203975.	71492.	924515.
1989	87323.	27824.	502136.	71070.	22645.	472849.	158393.	50469.	974984.
1990	259897.	75283.	577418.	61441.	17797.	490646.	321338.	93080.	1068065.
1991	234761.	61020.	639238.	65742.	17312.	507958.	300503.	79132.	1147197.
1992	246591.	59032.	698270.	70344.	16840.	524798.	316936.	75872.	1223068.
1993	220448.	47976.	746246.	75268.	16381.	541179.	295717.	64357.	1287425.
1994	205044.	40567.	786813.	80537.	15934.	557112.	285581.	56501.	1343926.
1995	225453.	40550.	827363.	86175.	15499.	572612.	311627.	56049.	1399975.
1996	240300.	39291.	866654.	92207.	15077.	587688.	332507.	54368.	1454342.
1997	251378.	37366.	904020.	98661.	14665.	602354.	350040.	52031.	1506373.
1998	249072.	40414.	944433.	105568.	14265.	616619.	404640.	54679.	1561053.
1999	658677.	80916.	1025349.	112958.	13876.	630496.	771634.	94792.	1655845.
2000	137508.	15357.	1040706.	114038.	12736.	643231.	251546.	28092.	1683937.
2001	19228.	1952.	1042658.	122021.	12388.	655619.	141249.	14340.	1698277.
2002	114733.	10589.	1053247.	130562.	12050.	667670.	245295.	22640.	1720917.
2003	100611.	13476.	1066723.	139702.	11722.	679391.	300312.	25198.	1746115.
2004	178716.	13632.	1080355.	149481.	11402.	690793.	328197.	25034.	1771149.
2005	199928.	13864.	1094219.	159944.	11091.	701885.	359873.	24955.	1796104.
2006	263702.	16624.	1110843.	171141.	10789.	712673.	434842.	27412.	1823516.
2007	297063.	17024.	1127867.	183120.	10494.	723168.	480183.	27519.	1851034.
2008	309990.	16150.	1144017.	195939.	10208.	733376.	505929.	26358.	1877393.
2009	333112.	15777.	1159794.	209655.	9930.	743305.	542767.	25707.	1903099.
2010	589612.	25387.	1185181.	224330.	9659.	752964.	813943.	35046.	1938145.

Table C.3 (Continued)

CASE 408. VOR=2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/8/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51021.	129208.	106282.	79851.	216705.	174989.	131472.	345913.
1981	80467.	59058.	188266.	88161.	60215.	276920.	174628.	119273.	465186.
1982	73660.	45737.	234003.	53441.	33183.	310103.	127101.	78920.	544106.
1983	62113.	35061.	269065.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38047.	307112.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87581.	40857.	348569.	40611.	18945.	374940.	128192.	59803.	723509.
1986	95477.	40492.	389060.	43454.	18429.	393369.	138931.	58920.	782429.
1987	95356.	36765.	425825.	46496.	17926.	411295.	141854.	54691.	837120.
1988	138338.	48487.	474312.	49750.	17437.	428732.	188088.	65924.	903044.
1989	87323.	27824.	502136.	53233.	16962.	445694.	140556.	44785.	947830.
1990	109630.	31756.	533891.	72459.	20989.	466683.	182089.	52745.	1000574.
1991	131353.	34589.	568481.	78491.	20669.	487352.	209843.	55258.	1055832.
1992	153387.	36720.	605200.	85011.	20351.	507703.	238398.	57071.	1112903.
1993	143347.	31197.	636397.	92060.	20035.	527738.	235408.	51232.	1164135.
1994	138988.	27498.	663895.	99680.	19721.	547459.	238667.	47219.	1211354.
1995	300949.	54920.	718815.	86175.	15499.	562958.	447124.	80419.	1291773.
1996	305078.	49883.	778697.	92207.	15077.	578035.	397285.	64959.	1356732.
1997	290315.	43153.	821851.	98601.	14665.	592700.	388977.	57819.	1414551.
1998	305750.	40424.	871275.	105568.	14265.	606966.	471317.	63689.	1478240.
1999	1828311.	224001.	1095876.	112958.	13876.	620842.	1941268.	238477.	1716717.
2000	88183.	7015.	1103490.	114038.	12736.	633577.	182221.	20350.	1737068.
2001	-140770.	-10368.	1084122.	122021.	12588.	645966.	-68750.	-6980.	1730088.
2002	-163099.	-15053.	1069069.	130562.	12050.	658016.	-32537.	-3003.	1727085.
2003	-132631.	-11128.	1057940.	139702.	11722.	669738.	7071.	593.	1727678.
2004	-116654.	-8898.	1049042.	149481.	11402.	681140.	32826.	2504.	1730182.
2005	-90300.	-6266.	1042776.	159944.	11091.	692231.	69584.	4825.	1735007.
2006	228234.	14368.	1057164.	171141.	10789.	703020.	399375.	25176.	1760183.
2007	311239.	17837.	1075001.	183120.	10494.	713514.	494360.	28331.	1788514.
2008	314554.	16388.	1091388.	195939.	10208.	723722.	510493.	26596.	1815110.
2009	376146.	17815.	1109204.	209655.	9930.	733652.	585800.	27745.	1842855.
2010	1746801.	77364.	1186568.	224330.	9659.	743311.	2021132.	87023.	1929879.

Table C.3 (Continued)

CASE 409. VOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/11/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51621.	129208.	114101.	85771.	222625.	182869.	137392.	351833.
1981	86467.	59058.	188266.	97080.	66307.	288932.	183547.	125365.	477198.
1982	73660.	45737.	234003.	83506.	39432.	328364.	157166.	85169.	562367.
1983	62113.	35061.	269065.	58124.	32810.	361174.	120237.	67871.	630238.
1984	75312.	38647.	307712.	50672.	26003.	387176.	125984.	64650.	694888.
1985	311321.	145234.	452945.	43807.	20436.	407613.	355128.	165670.	860558.
1986	267557.	113470.	566416.	40873.	19879.	427491.	314430.	133349.	993907.
1987	251497.	96963.	663379.	50154.	19537.	446828.	301652.	116300.	1110207.
1988	328961.	115294.	778677.	53005.	18809.	465637.	382626.	134108.	1244315.
1989	210995.	67230.	845907.	57422.	18296.	483934.	268417.	85526.	1329841.
1990	255519.	74015.	919922.	61441.	17797.	501731.	316961.	91812.	1421653.
1991	299460.	78857.	998779.	65742.	17312.	519043.	365202.	96169.	1517822.
1992	355552.	85119.	1083895.	70344.	16840.	535883.	425896.	101956.	1619778.
1993	309454.	67346.	1151241.	75208.	16381.	552264.	384722.	83727.	1703505.
1994	182882.	36162.	1187424.	80537.	15934.	568198.	263419.	52116.	1755621.
1995	200827.	36121.	1223544.	86175.	15499.	583697.	287002.	51620.	1807241.
1996	488316.	79044.	1303388.	92207.	15077.	598773.	580525.	94921.	1902162.
1997	502362.	74673.	1378061.	98661.	14665.	613439.	601024.	89338.	1991500.
1998	530600.	71700.	1449762.	105568.	14265.	627704.	636168.	85966.	2077466.
1999	690626.	83812.	1533574.	112958.	13876.	641581.	793584.	97689.	2174954.
2000	453902.	50691.	1584265.	8817.	985.	642565.	462719.	51676.	2226630.
2001	224442.	22787.	1606851.	9435.	958.	643523.	233876.	23744.	2250374.
2002	290415.	26804.	1633655.	10095.	932.	644455.	300510.	27736.	2278110.
2003	350884.	29441.	1663097.	10902.	906.	645361.	361085.	30347.	2308458.
2004	307155.	23429.	1686526.	11558.	882.	646243.	318713.	24311.	2332768.
2005	169411.	11747.	1698273.	12367.	858.	647100.	181777.	12605.	2345373.
2006	208518.	13145.	1711418.	13233.	834.	647934.	221751.	13979.	2359352.
2007	568161.	32561.	1743979.	14159.	811.	648746.	582320.	33372.	2392724.
2008	597983.	31154.	1775133.	15150.	789.	649535.	613133.	31943.	2424668.
2009	641832.	30399.	1805531.	16210.	768.	650303.	658042.	31166.	2455834.
2010	769837.	33147.	1838678.	17345.	747.	651050.	787182.	33894.	2489728.

Table C.3 (Continued)

CASE 410. VOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/11/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	66708.	51021.	129208.	106282.	79851.	216705.	174989.	131472.	345913.
1981	86467.	59058.	188266.	85161.	60215.	276920.	174628.	119273.	465186.
1982	73000.	45737.	234003.	53441.	33183.	310103.	127101.	78920.	544106.
1983	62113.	35061.	269065.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38647.	307712.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87581.	40857.	348569.	51662.	24101.	380096.	139243.	64958.	728065.
1986	95477.	40492.	389060.	55963.	23734.	403830.	151440.	64225.	792890.
1987	95358.	36765.	425825.	60612.	23366.	427198.	155970.	60133.	853023.
1988	136336.	48492.	474312.	65638.	23006.	450204.	203975.	71492.	924515.
1989	87325.	27824.	502136.	71070.	22645.	472849.	158395.	50469.	974984.
1990	368334.	112407.	614622.	61441.	17797.	490646.	449776.	130284.	1105268.
1991	305035.	96125.	710747.	65742.	17312.	507958.	430777.	113437.	1218705.
1992	347388.	95132.	805879.	70344.	16840.	524798.	467732.	111971.	1330677.
1993	350659.	77658.	883537.	75268.	16381.	541179.	432107.	94039.	1424716.
1994	332731.	65829.	949366.	80537.	15934.	557112.	413268.	81763.	1506479.
1995	364451.	65910.	1015276.	86175.	15499.	572612.	452626.	81409.	1587888.
1996	390609.	63668.	1079143.	92207.	15077.	587688.	482816.	78944.	1666832.
1997	409922.	60784.	1139927.	98661.	14665.	602354.	507583.	75449.	1742281.
1998	444269.	60034.	1199961.	105508.	14265.	616619.	549837.	74300.	1816581.
1999	508580.	68300.	1268827.	112958.	13876.	630496.	673544.	82742.	1899323.
2000	454002.	50702.	1319529.	120865.	13498.	643993.	574866.	64200.	1963523.
2001	231391.	23492.	1343021.	129325.	13130.	657123.	360716.	36622.	2000145.
2002	305459.	28195.	1371214.	138378.	12772.	669895.	443837.	40964.	2041109.
2003	302477.	30456.	1401670.	148064.	12423.	682318.	511041.	42879.	2083988.
2004	340835.	25998.	1427668.	158429.	12085.	694403.	499263.	38083.	2122071.
2005	335509.	23265.	1450933.	12367.	858.	695261.	347876.	24123.	2146194.
2006	400837.	25269.	1476202.	13233.	834.	696095.	414070.	26103.	2172296.
2007	456720.	26289.	1502490.	14159.	811.	696906.	472879.	27100.	2199396.
2008	486701.	25357.	1527847.	15150.	789.	697695.	501851.	26146.	2225542.
2009	528016.	25037.	1552883.	16210.	768.	698463.	544826.	25804.	2251346.
2010	655739.	28234.	1581117.	17345.	747.	699210.	673084.	28981.	2280327.

Table C.3 (Continued)

CASE 411. VOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/11/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51621.	129208.	114161.	85771.	222625.	182869.	137392.	351833.
1981	86467.	59056.	188266.	97080.	66307.	288932.	183547.	125365.	477198.
1982	73600.	45737.	234003.	63506.	39432.	328364.	137106.	85169.	562367.
1983	82113.	35061.	269065.	58124.	32810.	361174.	120237.	67871.	630238.
1984	75312.	38647.	307712.	50872.	26003.	387176.	125984.	64650.	694888.
1985	208281.	97165.	404876.	43807.	20436.	407613.	252088.	117601.	812489.
1986	177809.	75406.	480285.	46873.	19879.	427491.	224682.	95287.	907776.
1987	157044.	60547.	540832.	50154.	19337.	446828.	207198.	79884.	987660.
1988	214562.	75203.	616034.	53865.	18809.	465637.	268227.	94012.	1081672.
1989	120511.	40310.	656344.	57422.	18296.	483934.	183933.	58607.	1140278.
1990	152731.	44241.	700585.	61441.	17797.	501731.	214172.	62038.	1202316.
1991	178479.	46699.	747284.	65742.	17312.	519043.	244222.	64311.	1266627.
1992	214091.	51249.	798834.	70348.	16840.	535883.	284425.	68089.	1334717.
1993	183085.	39845.	838678.	75268.	16381.	552264.	258353.	56225.	1390942.
1994	130647.	27035.	865713.	80537.	15934.	568198.	217185.	42969.	1433911.
1995	155994.	28057.	893770.	86175.	15499.	583697.	242169.	43556.	1477467.
1996	252275.	47789.	941559.	92207.	15077.	598773.	384481.	62866.	1540333.
1997	298087.	44309.	985868.	98661.	14665.	613439.	396749.	58974.	1599307.
1998	312654.	42249.	1028117.	105568.	14265.	627704.	418222.	56515.	1655821.
1999	433118.	53207.	1081324.	112956.	13876.	641581.	546075.	67083.	1722905.
2000	290824.	32479.	1113803.	114038.	12736.	654316.	404862.	45214.	1768119.
2001	122044.	12391.	1126193.	122021.	12388.	666704.	244065.	24779.	1792898.
2002	164485.	15181.	1141374.	130502.	12050.	678755.	295047.	27232.	1820129.
2003	197641.	16563.	1157958.	139702.	11722.	690476.	337343.	28305.	1848434.
2004	160077.	12821.	1170778.	149481.	11402.	701879.	317558.	24223.	1872657.
2005	121257.	8408.	1179186.	159944.	11091.	712970.	281201.	19499.	1892156.
2006	157970.	9959.	1189145.	171141.	10789.	723758.	329117.	20747.	1912903.
2007	336155.	19265.	1208410.	183120.	10494.	734253.	519276.	29759.	1942662.
2008	356234.	18559.	1226969.	195939.	10208.	744461.	552172.	28767.	1971430.
2009	383903.	18185.	1245152.	209655.	9930.	754390.	593557.	28112.	1999542.
2010	470923.	20535.	1265686.	224330.	9659.	764049.	701253.	30194.	2029736.

Table C.3 (Continued)

CASE 412. VOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/11/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52041.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51821.	129206.	106282.	79851.	216705.	174989.	131472.	345913.
1981	86467.	59058.	188265.	88161.	60215.	276920.	174628.	119273.	465186.
1982	73000.	45737.	234003.	53441.	33183.	310103.	127101.	78920.	544106.
1983	82113.	35061.	269065.	46797.	20416.	330519.	108910.	61477.	605583.
1984	75312.	38647.	307712.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87581.	40857.	348569.	51662.	24101.	380096.	139243.	64958.	728665.
1986	95477.	40492.	389060.	55963.	23734.	403830.	151440.	64225.	792890.
1987	95558.	36765.	425825.	60612.	23308.	427198.	155970.	60133.	853023.
1988	134334.	48487.	474312.	65638.	23006.	450204.	203975.	71492.	924515.
1989	87323.	27824.	502136.	71070.	22645.	472849.	158393.	50469.	974984.
1990	259847.	75283.	577416.	61441.	17797.	490646.	321338.	93080.	1068065.
1991	234781.	61820.	639238.	65742.	17312.	507956.	300503.	79132.	1147197.
1992	246591.	59032.	698270.	70344.	16840.	524798.	316936.	75872.	1223068.
1993	220448.	47976.	746246.	75268.	16381.	541179.	295717.	64357.	1287425.
1994	205044.	40557.	786803.	80537.	15934.	557112.	285581.	56501.	1343926.
1995	225455.	40550.	827343.	86175.	15499.	572612.	311627.	56049.	1399975.
1996	240300.	39491.	866834.	92207.	15077.	587688.	332507.	54568.	1454342.
1997	253738.	37360.	904020.	98661.	14665.	602354.	350040.	52031.	1506373.
1998	274659.	37115.	941135.	105566.	14265.	616619.	380227.	51380.	1557754.
1999	303074.	40602.	985737.	112958.	13876.	630496.	476032.	58479.	1616232.
2000	290042.	32458.	1018195.	120865.	13498.	643993.	411507.	45956.	1662189.
2001	126435.	12636.	1030831.	129325.	13130.	657123.	255760.	25966.	1688155.
2002	174119.	16271.	1047102.	136378.	12772.	669895.	312497.	28842.	1716997.
2003	205504.	17248.	1064350.	148064.	12423.	682318.	353628.	29671.	1746668.
2004	197638.	15075.	1079425.	158429.	12085.	694403.	356067.	27160.	1773828.
2005	147715.	13710.	1093136.	159944.	11091.	705494.	357659.	24801.	1798630.
2006	240328.	15150.	1108286.	171141.	10789.	716283.	411469.	25939.	1824568.
2007	281227.	16117.	1124402.	183120.	10494.	726777.	464347.	26611.	1851179.
2008	300817.	15672.	1140075.	195939.	10208.	736985.	496756.	25880.	1877060.
2009	328120.	15541.	1155615.	209655.	9930.	746915.	537775.	25470.	1902530.
2010	422040.	18172.	1173787.	224330.	9659.	756574.	646376.	27831.	1930361.

Table C.3 (Continued)

CASE 813. VOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/10/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52041.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51621.	129208.	114161.	85771.	222625.	182869.	137392.	351833.
1981	80467.	59058.	188266.	97080.	66307.	288932.	183547.	125365.	477198.
1982	73000.	45737.	234003.	63506.	39432.	328364.	137166.	85169.	562367.
1983	82113.	35061.	269065.	58124.	32810.	361174.	120237.	67871.	630238.
1984	75312.	28047.	307712.	50672.	26003.	387176.	125984.	64650.	694888.
1985	208281.	97165.	404876.	43807.	20436.	407613.	252088.	117601.	812489.
1986	177809.	75408.	480285.	40873.	19879.	427491.	224682.	95287.	907776.
1987	157110.	60573.	540857.	50154.	19337.	446828.	207265.	79910.	987685.
1988	214805.	75218.	616075.	53665.	18809.	465637.	268270.	94027.	1081713.
1989	126549.	40322.	656397.	57422.	18296.	483934.	183971.	58619.	1140331.
1990	153327.	44413.	700811.	61441.	17797.	501731.	214768.	62211.	1202542.
1991	178925.	47117.	747927.	65742.	17312.	519043.	244667.	64429.	1266970.
1992	217138.	51981.	799908.	70344.	16840.	535883.	287482.	68821.	1335791.
1993	226911.	49382.	849291.	75268.	16381.	552264.	302179.	65763.	1401554.
1994	345408.	70229.	927520.	80537.	15934.	568198.	425945.	86163.	1487718.
1995	116097.	20989.	948509.	81306.	14624.	582821.	196005.	35613.	1531330.
1996	182473.	29917.	978426.	86999.	14225.	597046.	269972.	44143.	1575473.
1997	234595.	34871.	1013296.	93089.	13837.	610884.	327684.	48708.	1624181.
1998	255845.	34572.	1047870.	99605.	13460.	624343.	355450.	48032.	1672213.
1999	335858.	41259.	1089129.	106576.	13093.	637436.	442435.	54351.	1726565.
2000	259541.	28496.	1118125.	114038.	12736.	650171.	373579.	41732.	1768297.
2001	136312.	14042.	1132167.	122021.	12388.	662560.	260333.	26430.	1794727.
2002	185523.	17151.	1149318.	130562.	12050.	674610.	316366.	29201.	1823928.
2003	213701.	17931.	1167249.	139702.	11722.	686332.	353402.	29652.	1853581.
2004	204186.	15575.	1182823.	149481.	11402.	697734.	353667.	26977.	1880557.
2005	330252.	22901.	1205724.	159944.	11091.	708825.	490197.	33992.	1914549.
2006	151206.	9532.	1215256.	171141.	10789.	719614.	322347.	20321.	1934870.
2007	267970.	15357.	1230613.	183120.	10494.	730108.	451090.	25851.	1960721.
2008	414534.	21547.	1252210.	195939.	10208.	740316.	610473.	31805.	1992526.
2009	294131.	13931.	1266141.	209655.	9930.	750246.	503786.	23861.	2016387.
2010	388855.	16743.	1282883.	224330.	9659.	759905.	613185.	26402.	2042788.

Table C.4
Summary User and FAA Annualized Cost Printouts
(7% Inflation; 10% Present Value Discount)
By Sensitivity Modification

CASE 100-0. BASELINE VOR-2ND/OMEGA FOR SELF-CONTAINED. 5/17/78 PAGE 94

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	29721.	27019.	27019.	62835.	57123.	57123.	92556.	84142.	84142.
1979	40797.	33716.	60736.	83035.	68624.	125747.	123832.	102340.	186482.
1980	51075.	38374.	99110.	88235.	66292.	192039.	139310.	104666.	291148.
1981	61112.	41741.	140850.	68735.	46947.	238986.	129847.	88688.	379836.
1982	47758.	29654.	170504.	39580.	24576.	263562.	87338.	54230.	434066.
1983	36709.	20721.	191225.	32000.	18036.	281998.	69369.	39157.	473223.
1984	42321.	21710.	212943.	23780.	12203.	294201.	66101.	33920.	507144.
1985	46146.	21527.	234470.	23780.	11094.	305294.	69926.	32621.	539764.
1986	47005.	19935.	254405.	23780.	10085.	315379.	70785.	30020.	569784.
1987	43600.	16510.	271215.	23780.	9168.	324547.	67380.	25978.	595762.
1988	61118.	21421.	292636.	23780.	8335.	332882.	84898.	29756.	625519.
1989	54107.	17887.	310523.	23780.	7577.	340459.	77947.	18464.	643982.
1990	40700.	11789.	315312.	23780.	6888.	347347.	64480.	18678.	662660.
1991	40060.	12129.	327441.	23780.	6262.	353609.	63840.	18391.	681051.
1992	50724.	12144.	339585.	23780.	5693.	359302.	74509.	17837.	698888.
1993	43730.	9518.	349104.	23780.	5175.	364477.	67516.	14693.	713581.
1994	39142.	7744.	356848.	23780.	4705.	369182.	62922.	12449.	726030.
1995	42569.	7674.	364522.	23780.	4277.	373459.	66349.	11951.	737981.
1996	43327.	7084.	371607.	23780.	3888.	377347.	67107.	10973.	748954.
1997	41675.	6195.	377801.	23780.	3535.	380882.	65455.	9729.	758683.
1998	42418.	5732.	383533.	23780.	3213.	384095.	66198.	8945.	767629.
1999	52495.	6449.	389982.	23780.	2921.	387017.	76275.	9370.	776999.
2000	38207.	4267.	394249.	23780.	2656.	389672.	61987.	6923.	783922.
2001	13599.	1581.	395830.	23780.	2414.	392087.	37379.	3795.	787716.
2002	16488.	1700.	397530.	23780.	2195.	394282.	42266.	3901.	791618.
2003	21076.	1750.	399104.	23780.	1995.	396277.	44856.	3764.	795381.
2004	18522.	1413.	400517.	23780.	1814.	398091.	42302.	3227.	798608.
2005	17305.	1204.	401721.	23780.	1649.	399740.	41145.	2853.	801461.
2006	20753.	1309.	403030.	23780.	1499.	401239.	44533.	2807.	804268.
2007	23334.	1337.	404367.	23780.	1363.	402602.	47114.	2700.	806968.
2008	23261.	1212.	405579.	23780.	1239.	403840.	47041.	2451.	809419.
2009	23861.	1130.	406709.	23780.	1126.	404967.	47641.	2256.	811676.
2010	28822.	1241.	407950.	23780.	1024.	405991.	52602.	2265.	813940.

Table C.4 (Continued)

CASE 100- 1. BASELINE VOR-2ND/OMEGA FOR SELF-CONTAINED. 1/17/78 PAGE 106

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	66900.	60819.	60819.	67233.	61121.	61121.	134134.	121940.	121940.
1979	84080.	69488.	130306.	95067.	78568.	139689.	179147.	148055.	269995.
1980	102916.	77322.	207628.	108092.	81211.	220900.	211008.	158533.	428528.
1981	124565.	85079.	292708.	90098.	61538.	282438.	214662.	146617.	575146.
1982	113006.	70168.	362876.	55513.	34469.	316907.	168519.	104637.	679782.
1983	101859.	57497.	420372.	49014.	27667.	344574.	150873.	85164.	764946.
1984	117828.	60464.	480837.	38185.	19595.	364169.	156013.	80060.	845006.
1985	134754.	62864.	543701.	40858.	19061.	383230.	175613.	81925.	926930.
1986	146833.	62272.	605972.	43719.	18541.	401771.	190552.	80813.	1007743.
1987	149187.	57518.	663490.	46779.	18035.	419806.	195965.	75553.	1083296.
1988	199974.	70090.	733580.	50053.	17543.	437349.	250027.	87633.	1170929.
1989	146945.	46821.	780401.	53557.	17065.	454414.	200503.	63886.	1234815.
1990	174676.	50597.	830998.	57306.	16600.	471014.	231982.	67197.	1302012.
1991	202206.	53247.	884246.	61318.	16147.	487161.	263523.	69394.	1371406.
1992	230565.	55195.	939441.	65610.	15706.	502867.	296175.	70902.	1442308.
1993	224042.	48758.	988199.	70202.	15278.	518145.	294244.	64036.	1506344.
1994	223680.	44254.	1032453.	75117.	14861.	533007.	298797.	59115.	1565460.
1995	247930.	44592.	1077045.	80375.	14456.	547463.	328305.	59048.	1624508.
1996	269664.	44092.	1121137.	86001.	14062.	561525.	355665.	58154.	1682662.
1997	281763.	41882.	1163020.	92021.	13678.	575203.	373785.	55561.	1738223.
1998	304131.	41097.	1204117.	98463.	13305.	588508.	402593.	54403.	1792625.
1999	375028.	46071.	1250188.	105355.	12942.	601451.	480383.	59013.	1851639.
2000	327701.	36597.	1286785.	112730.	12589.	614040.	440431.	49186.	1900825.
2001	207820.	21099.	1307884.	120621.	12246.	626286.	328441.	33345.	1934170.
2002	242020.	22338.	1330221.	129064.	11912.	638198.	371085.	34250.	1968420.
2003	265164.	22249.	1352470.	138099.	11587.	649786.	403263.	33836.	2002256.
2004	256381.	19556.	1372026.	147766.	11271.	661057.	404147.	30827.	2033083.
2005	253481.	17577.	1389604.	158109.	10964.	672021.	411591.	28541.	2061624.
2006	278629.	17565.	1407168.	169177.	10665.	682685.	447806.	28229.	2089854.
2007	306362.	17557.	1424725.	181019.	10374.	693059.	487382.	27931.	2117785.
2008	326761.	17024.	1441749.	193691.	10091.	703150.	520452.	27115.	2144900.
2009	353656.	16750.	1458499.	207249.	9816.	712966.	560905.	26566.	2171465.
2010	429699.	18501.	1477001.	221757.	9548.	722514.	651456.	28050.	2199515.

Table C.4 (Continued)

CASE 100- 2. BASELINE VOR-2ND/OMEGA FOR SELF-CONTAINED. 1/17/78 PAGE 106

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	70582.	64166.	64166.	67233.	61121.	61121.	137816.	125287.	125287.
1979	93674.	77416.	141582.	95067.	78568.	139689.	188741.	155984.	281271.
1980	121038.	90938.	232520.	108092.	81211.	220900.	229130.	172149.	453420.
1981	154748.	105695.	338215.	90098.	61538.	282438.	244845.	167233.	620652.
1982	148404.	92147.	430362.	55513.	34469.	316907.	203917.	126617.	747269.
1983	141255.	79735.	510096.	49014.	27667.	344574.	190269.	107402.	854670.
1984	172313.	88424.	598520.	38185.	19595.	364169.	210498.	108019.	962689.
1985	208125.	97092.	695612.	40858.	19061.	383230.	248983.	116152.	1078842.
1986	239285.	101480.	797092.	43719.	18541.	401771.	283003.	120021.	1198863.
1987	256013.	98704.	895796.	46779.	18035.	419806.	302792.	116739.	1315602.
1988	361298.	126633.	1022429.	50053.	17543.	437349.	411352.	144176.	1459778.
1989	280216.	89285.	1111714.	53557.	17065.	454414.	333773.	106350.	1566129.
1990	350888.	101640.	1213354.	57306.	16600.	471014.	408194.	118239.	1684368.
1991	427862.	112670.	1326023.	61318.	16147.	487161.	489180.	128816.	1813184.
1992	514193.	123094.	1449117.	65610.	15706.	502867.	579802.	138800.	1951984.
1993	527246.	114744.	1563861.	70202.	15278.	518145.	597448.	130022.	2082006.
1994	555416.	109886.	1673747.	75117.	14861.	533007.	630533.	124748.	2206754.
1995	649109.	116748.	1790495.	80375.	14456.	547463.	729484.	131204.	2337958.
1996	743978.	121646.	1912142.	86001.	14062.	561525.	829979.	135708.	2473666.
1997	819217.	121771.	2033913.	92021.	13678.	575203.	911238.	135450.	2609116.
1998	932069.	125951.	2159864.	98463.	13305.	588508.	1030531.	139256.	2748372.
1999	1210933.	148758.	2308622.	105355.	12942.	601451.	1316288.	161701.	2910073.
2000	1118096.	124867.	2433489.	112730.	12589.	614040.	1230826.	137456.	3047529.
2001	745794.	75717.	2509206.	120621.	12246.	626286.	866415.	87963.	3135492.
2002	914586.	84413.	2593619.	129064.	11912.	638198.	1043650.	96325.	3231817.
2003	1054021.	88438.	2682057.	138099.	11587.	649786.	1192119.	100025.	3331843.
2004	1074961.	81996.	2764053.	147766.	11271.	661057.	1222727.	93267.	3425109.
2005	1121280.	77753.	2841806.	158109.	10964.	672021.	1279389.	88717.	3513826.
2006	1297934.	81821.	2923627.	169177.	10665.	682685.	1467111.	92486.	3606312.
2007	1504754.	86235.	3009862.	181019.	10374.	693059.	1685774.	96609.	3702922.
2008	1692001.	88151.	3098013.	193691.	10091.	703150.	1885692.	98242.	3801164.
2009	1931217.	91467.	3189480.	207249.	9816.	712966.	2138466.	101283.	3902447.
2010	2498662.	106293.	3295773.	221757.	9548.	722514.	2690419.	115841.	4018287.

Table C.4 (Continued)

CASE 100- 3, BASELINE VOR-2ND/OMEGA FOR SELF-CONTAINED, 1/17/78 PAGE 106

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
	AFTER TAX		CUMULATIVE	NET		CUMULATIVE			CUMULATIVE
YEAR	CASH OUTLAY	PRESENT VALUE	PRESENT VALUE	CASH OUTLAY	PRESENT VALUE	PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	PRESENT VALUE
1978	34013.	30921.	30921.	67233.	61121.	61121.	101246.	92042.	92042.
1979	47117.	38940.	69860.	95067.	78568.	139689.	142184.	117507.	209549.
1980	60238.	45258.	115118.	108092.	81211.	220900.	168330.	126469.	336018.
1981	73999.	50543.	165661.	90098.	61538.	282438.	164097.	112080.	448098.
1982	60655.	37662.	203323.	55513.	34469.	316907.	116168.	72131.	520229.
1983	49090.	27710.	231033.	49014.	27667.	344574.	98104.	55377.	575606.
1984	58096.	29812.	260845.	38185.	19595.	364169.	96281.	49407.	625014.
1985	65588.	30597.	291442.	40858.	19061.	383230.	106446.	49658.	674672.
1986	69315.	29396.	320838.	43719.	18541.	401771.	113034.	47937.	722609.
1987	66946.	25811.	346649.	46779.	18035.	419806.	113725.	43846.	766455.
1988	95412.	33441.	380090.	50053.	17543.	437349.	145465.	50985.	817440.
1989	57139.	18206.	398297.	53557.	17065.	454414.	110697.	35271.	852711.
1990	69965.	20266.	418563.	57306.	16600.	471014.	127271.	36866.	889577.
1991	81615.	21492.	440055.	61318.	16147.	487161.	142933.	37639.	927216.
1992	92734.	22200.	462255.	65610.	15706.	502867.	158344.	37906.	965122.
1993	83582.	18190.	480445.	70202.	15278.	518145.	153784.	33468.	998590.
1994	78181.	15468.	495912.	75117.	14861.	533007.	153297.	30329.	1028919.
1995	87484.	15735.	511647.	80375.	14456.	547463.	167858.	30191.	1059110.
1996	92264.	15086.	526733.	86001.	14062.	561525.	178265.	29148.	1088257.
1997	92340.	13726.	540459.	92021.	13678.	575203.	184361.	27404.	1115662.
1998	97341.	13154.	553612.	98463.	13305.	588508.	195804.	26459.	1142121.
1999	123348.	15153.	568765.	105355.	12942.	601451.	228703.	28095.	1170216.
2000	94783.	10585.	579350.	112730.	12589.	614040.	207513.	23175.	1193391.
2001	39152.	3975.	583325.	120621.	12246.	626286.	159773.	16221.	1209612.
2002	52727.	4866.	588192.	129064.	11912.	638198.	181791.	16779.	1226390.
2003	61127.	5129.	593321.	138099.	11587.	649786.	199226.	16716.	1243106.
2004	56184.	4286.	597606.	147766.	11271.	661057.	203950.	15557.	1258663.
2005	54507.	3780.	601386.	158109.	10964.	672021.	212616.	14744.	1273407.
2006	65183.	4109.	605495.	169177.	10665.	682685.	234360.	14774.	1288181.
2007	74459.	4267.	609762.	181019.	10374.	693059.	255479.	14641.	1302822.
2008	77000.	4012.	613774.	193691.	10091.	703150.	270690.	14103.	1316924.
2009	81680.	3869.	617642.	207249.	9816.	712966.	288929.	13684.	1330609.
2010	101184.	4357.	621999.	221757.	9548.	722514.	322940.	13905.	1344513.

Table C.4 (Continued)

CASE 100= 4, BASELINE VOR=2ND/OMEGA FOR SELF-CONTAINED, 1/17/78 PAGE 106

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
	AFTER TAX		CUMULATIVE	NET		CUMULATIVE			CUMULATIVE
YEAR	CASH OUTLAY	PRESENT VALUE	PRESENT VALUE	CASH OUTLAY	PRESENT VALUE	PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	PRESENT VALUE
1978	39871.	36246.	36246.	67233.	61121.	61121.	107104.	97367.	97367.
1979	56645.	46814.	83060.	95067.	78568.	139689.	151712.	125381.	222749.
1980	75112.	56432.	139492.	108092.	81211.	220900.	183203.	137643.	360392.
1981	96224.	65722.	205215.	90098.	61538.	282438.	186322.	127260.	487652.
1982	84106.	52261.	257475.	55513.	34469.	316907.	139679.	86730.	574382.
1983	72975.	41192.	298668.	49014.	27667.	344574.	121989.	68859.	643242.
1984	90084.	46227.	344895.	38185.	19595.	364169.	128269.	65822.	709064.
1985	106979.	49906.	394801.	40858.	19061.	383230.	147837.	68967.	778031.
1986	119199.	50552.	445353.	43719.	18541.	401771.	162917.	69093.	847124.
1987	121863.	46984.	492337.	46779.	18035.	419806.	168642.	65019.	912143.
1988	179292.	62841.	555177.	50053.	17543.	437349.	229345.	80384.	992527.
1989	117175.	37336.	592513.	53557.	17065.	454414.	170732.	54401.	1046927.
1990	149823.	43398.	635912.	57306.	16600.	471014.	207129.	59998.	1106925.
1991	183012.	48193.	684104.	61318.	16147.	487161.	244329.	64340.	1171265.
1992	217962.	52178.	736283.	65610.	15706.	502867.	283571.	67885.	1239150.
1993	208643.	45450.	781733.	70202.	15278.	518145.	279045.	60728.	1299878.
1994	207560.	41065.	822797.	75117.	14861.	533007.	282676.	55926.	1355804.
1995	242340.	43587.	866384.	80375.	14456.	547463.	322714.	58043.	1413847.
1996	269770.	44110.	910494.	86001.	14062.	561525.	355771.	58171.	1472019.
1997	285556.	42446.	952940.	92021.	13678.	575203.	377577.	56124.	1528143.
1998	318851.	42816.	995756.	98463.	13305.	588508.	415313.	56122.	1584265.
1999	417578.	51298.	1047054.	105355.	12942.	601451.	522933.	64240.	1648505.
2000	344750.	38501.	1085555.	112730.	12589.	614040.	457480.	51090.	1699595.
2001	166750.	16929.	1102485.	120621.	12246.	626286.	287370.	29175.	1728771.
2002	227284.	20977.	1123462.	129064.	11912.	638198.	356348.	32890.	1761660.
2003	272602.	22873.	1146335.	138099.	11587.	649786.	410701.	34460.	1796120.
2004	266030.	20292.	1166627.	147766.	11271.	661057.	413796.	31563.	1827684.
2005	271348.	18816.	1185443.	158109.	10964.	672021.	429457.	29780.	1857464.
2006	330726.	20849.	1206292.	169177.	10665.	682685.	499903.	31514.	1888977.
2007	390284.	22367.	1228658.	181019.	10374.	693059.	571304.	32741.	1921718.
2008	425510.	22168.	1250827.	193691.	10091.	703150.	619200.	32260.	1953977.
2009	474395.	22469.	1273295.	207249.	9816.	712966.	681644.	32284.	1986262.
2010	612236.	26361.	1299656.	221757.	9548.	722514.	833992.	35909.	2022171.

Table C.4 (Continued)

CASE 100- 5. BASELINE VOR-2ND/OMEGA FOR SELF-CONTAINED, 1/17/78 PAGE 100

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
	AFTER TAX		CUMULATIVE	NET		CUMULATIVE			CUMULATIVE
YEAR	CASH OUTLAY	PRESENT VALUE	PRESENT VALUE	CASH OUTLAY	PRESENT VALUE	PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	PRESENT VALUE
1978	40489.	36808.	36808.	69118.	62835.	62835.	109607.	99643.	99643.
1979	57716.	47699.	84507.	100472.	83035.	145870.	158188.	130734.	230377.
1980	76862.	57747.	142254.	117441.	88235.	234105.	194302.	145982.	376359.
1981	98937.	67576.	209830.	100635.	68735.	302840.	199572.	136311.	512670.
1982	87136.	54104.	263934.	63744.	39580.	342420.	150880.	93684.	606354.
1983	76095.	42954.	306888.	57859.	32660.	375080.	133955.	75614.	681968.
1984	94390.	48437.	355325.	46340.	23780.	398860.	140730.	72217.	754185.
1985	112714.	52582.	407907.	50975.	23780.	422640.	163689.	76362.	830547.
1986	126313.	53569.	461476.	56072.	23780.	446420.	182385.	77349.	907896.
1987	129929.	50093.	511569.	61679.	23780.	470200.	191608.	73873.	981769.
1988	191902.	67260.	578830.	67847.	23780.	493980.	259749.	91040.	1072810.
1989	126534.	40318.	619147.	74632.	23780.	517760.	201166.	64098.	1136907.
1990	162583.	47095.	666242.	82095.	23780.	541540.	244678.	70875.	1207782.
1991	199622.	52567.	718809.	90305.	23780.	565320.	289927.	76347.	1284129.
1992	238991.	57213.	776021.	99335.	23780.	589100.	338326.	80993.	1365121.
1993	230487.	50161.	826182.	109268.	23780.	612880.	339756.	73941.	1439062.
1994	230551.	45613.	871795.	120195.	23780.	636660.	350746.	69393.	1508455.
1995	270497.	48651.	920447.	132215.	23780.	660440.	402712.	72431.	1580887.
1996	302882.	49524.	969970.	145436.	23780.	684220.	448318.	73304.	1654190.
1997	322545.	47944.	1017915.	159980.	23780.	708000.	482525.	71724.	1725915.
1998	359908.	48635.	1066549.	175978.	23780.	731780.	535886.	72415.	1798329.
1999	476484.	58534.	1125083.	193576.	23780.	755560.	670060.	82314.	1880643.
2000	396329.	44261.	1169345.	212933.	23780.	779340.	609263.	68041.	1948685.
2001	194510.	19748.	1189092.	234227.	23780.	803120.	428737.	43528.	1992212.
2002	265764.	24529.	1213621.	257649.	23780.	826900.	523413.	48309.	2040521.
2003	320078.	26856.	1240478.	283414.	23780.	850680.	603492.	50636.	2091158.
2004	314336.	23977.	1264454.	311756.	23780.	874460.	626092.	47757.	2138914.
2005	322387.	22355.	1286810.	342931.	23780.	898240.	665318.	46135.	2185050.
2006	394087.	24843.	1311653.	377224.	23780.	922020.	771311.	48623.	2233673.
2007	466932.	26759.	1338412.	414947.	23780.	945800.	881878.	50539.	2284212.
2008	512011.	26675.	1365087.	456441.	23780.	969580.	968453.	50455.	2334667.
2009	573975.	27185.	1392272.	502086.	23780.	993360.	1076060.	50965.	2385632.
2010	744236.	32044.	1424316.	552294.	23780.	1017140.	1296530.	55824.	2441456.

Table C.4 (Continued)

CASE 100- 6. BASELINE VOR-2ND/OMEGA FOR SELF-CONTAINED. 1/17/78 PAGE 106

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
	AFTER TAX		CUMULATIVE	NET		CUMULATIVE			CUMULATIVE
YEAR	CASH OUTLAY	PRESENT VALUE	PRESENT VALUE	CASH OUTLAY	PRESENT VALUE	PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	PRESENT VALUE
1978	34309.	31190.	31190.	65348.	59408.	59408.	99658.	90598.	90598.
1979	47573.	39316.	70507.	89811.	74224.	133631.	137383.	113540.	204138.
1980	60921.	45771.	116277.	99252.	74570.	208201.	160173.	120340.	324478.
1981	74985.	51216.	167493.	80410.	54921.	263122.	155396.	106137.	430616.
1982	61665.	38289.	205782.	48155.	29901.	293023.	109820.	68190.	498805.
1983	50084.	28271.	234053.	41325.	23327.	316350.	91409.	51598.	550403.
1984	59388.	30475.	264529.	31293.	16058.	332408.	90681.	46534.	596937.
1985	67213.	31355.	295884.	32545.	15182.	347590.	99757.	46538.	643475.
1986	71218.	30203.	326087.	33846.	14354.	361945.	105064.	44557.	688032.
1987	68979.	26594.	352682.	35200.	13571.	375516.	104179.	40165.	728197.
1988	98443.	34504.	387185.	36608.	12831.	388347.	135051.	47335.	775532.
1989	59226.	18871.	406057.	38073.	12131.	400478.	97298.	31002.	806534.
1990	72668.	21049.	427106.	39595.	11469.	411947.	112263.	32519.	839053.
1991	84955.	22371.	449477.	41179.	10844.	422791.	126134.	33215.	872268.
1992	96748.	23161.	472638.	42826.	10252.	433043.	139574.	33413.	905681.
1993	87468.	19036.	491673.	44539.	9693.	442736.	132007.	28729.	934410.
1994	82065.	16236.	507909.	46321.	9164.	451901.	128386.	25401.	959810.
1995	92012.	16549.	524459.	48174.	8665.	460565.	140186.	25214.	985024.
1996	97299.	15909.	540368.	50101.	8192.	468757.	147399.	24101.	1009125.
1997	97651.	14515.	554883.	52105.	7745.	476502.	149756.	22260.	1031385.
1998	103197.	13945.	568828.	54189.	7323.	483825.	157386.	21268.	1052653.
1999	131005.	16093.	584921.	56357.	6923.	490748.	187361.	23017.	1075669.
2000	101038.	11284.	596205.	58611.	6546.	497294.	159649.	17829.	1093499.
2001	42115.	4276.	600481.	60955.	6189.	503482.	103070.	10464.	1103963.
2002	56718.	5235.	605716.	63394.	5851.	509333.	120112.	11086.	1115049.
2003	65849.	5525.	611241.	65929.	5532.	514865.	131779.	11057.	1126106.
2004	60710.	4631.	615872.	68566.	5230.	520095.	129276.	9861.	1135967.
2005	59041.	4094.	619966.	71309.	4945.	525040.	130350.	9039.	1145005.
2006	70642.	4453.	624419.	74162.	4675.	529715.	144803.	9128.	1154134.
2007	80806.	4631.	629050.	77128.	4420.	534135.	157934.	9051.	1163185.
2008	83780.	4365.	633415.	80213.	4179.	538314.	163993.	8544.	1171729.
2009	89087.	4219.	637634.	83422.	3951.	542265.	172509.	8170.	1179899.
2010	110570.	4761.	642395.	86758.	3736.	546001.	197328.	8496.	1188395.

Table C.4 (Continued)

CASE 100- 7. BASELINE VOR-2ND/OMEGA FOR SELF-CONTAINED, 1/17/78 PAGE 106

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
	AFTER TAX		CUMULATIVE	NET		CUMULATIVE			CUMULATIVE
YEAR	CASH OUTLAY	PRESENT VALUE	PRESENT VALUE	CASH OUTLAY	PRESENT VALUE	PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	PRESENT VALUE
1978	37370.	33973.	33973.	67233.	61121.	61121.	104604.	95094.	95094.
1979	52142.	43092.	77065.	95067.	78568.	139689.	147208.	121660.	216754.
1980	67588.	50780.	127845.	108092.	81211.	220900.	175679.	131991.	348745.
1981	84465.	57691.	185536.	90098.	61538.	282438.	174563.	119229.	467973.
1982	71413.	44342.	229878.	55513.	34469.	316907.	126926.	78811.	546784.
1983	59786.	33748.	263625.	49014.	27667.	344574.	108800.	61415.	608199.
1984	72109.	37003.	300629.	38185.	19595.	364169.	110295.	56599.	664798.
1985	83383.	38899.	339527.	40858.	19061.	383230.	124241.	57959.	722757.
1986	90254.	38276.	377804.	43719.	18541.	401771.	133972.	56817.	779574.
1987	89375.	34458.	412262.	46779.	18035.	419806.	136154.	52493.	832068.
1988	128673.	45099.	457360.	51053.	17543.	437349.	178726.	62642.	894710.
1989	80397.	25617.	482977.	53557.	17065.	454414.	133954.	42682.	937392.
1990	100442.	29095.	512072.	57306.	16600.	471014.	157748.	45694.	983086.
1991	119625.	31501.	543573.	61318.	16147.	487161.	180942.	47648.	1030734.
1992	138773.	33221.	576794.	65610.	15706.	502867.	204383.	48928.	1079661.
1993	128678.	28004.	604798.	70202.	15278.	518145.	198880.	43282.	1122943.
1994	123896.	24512.	629310.	75117.	14861.	533007.	199013.	39374.	1162317.
1995	141389.	25430.	654740.	80375.	14456.	547463.	221764.	39886.	1202203.
1996	152799.	24984.	679724.	86001.	14062.	561525.	238800.	39046.	1241249.
1997	156919.	23325.	703049.	92021.	13678.	575203.	248940.	37003.	1278252.
1998	169331.	22882.	725931.	98463.	13305.	588508.	267794.	36187.	1314439.
1999	217671.	26740.	752671.	105355.	12942.	601451.	323026.	39682.	1354122.
2000	173305.	19354.	772026.	112730.	12589.	614040.	286035.	31944.	1386066.
2001	77994.	7918.	779944.	120621.	12246.	626286.	198615.	20164.	1406230.
2002	105625.	9749.	789693.	129064.	11912.	638198.	234689.	21661.	1427891.
2003	124477.	10444.	800137.	138099.	11587.	649786.	262576.	22032.	1449923.
2004	118052.	9005.	809142.	147766.	11271.	661057.	265818.	20276.	1470199.
2005	117632.	8157.	817299.	158109.	10964.	672021.	275741.	19121.	1489319.
2006	141724.	8934.	826233.	169177.	10665.	682685.	310901.	19599.	1508918.
2007	164340.	9418.	835651.	181019.	10374.	693059.	345359.	19792.	1528710.
2008	174500.	9091.	844742.	193691.	10091.	703150.	368190.	19182.	1547893.
2009	189800.	8989.	853731.	207249.	9816.	712966.	397049.	18805.	1566698.
2010	238796.	10282.	864013.	221757.	9548.	722514.	460552.	19830.	1586528.

Table C.4 (Continued)

CASE 100- 8. BASELINE VOR-2ND/OMEGA FOR SELF-CONTAINED. 1/17/78 PAGE 106

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37527.	34115.	34115.	67233.	61121.	61121.	104760.	95236.	95236.
1979	52761.	43604.	77719.	95067.	78568.	139689.	147828.	122172.	217408.
1980	68928.	51786.	129506.	108092.	81211.	220900.	177019.	132997.	350406.
1981	86851.	59320.	188826.	90098.	61538.	282438.	176948.	120858.	471264.
1982	74131.	46030.	234856.	55513.	34469.	316907.	129644.	80499.	551763.
1983	62586.	35328.	270184.	49014.	27667.	344574.	111600.	62995.	614758.
1984	75870.	38933.	309117.	38185.	19595.	364169.	114056.	58529.	673286.
1985	88320.	41202.	350319.	40858.	19061.	383230.	129179.	60263.	733549.
1986	96524.	40851.	391170.	43719.	18541.	401771.	140043.	59392.	792941.
1987	96115.	37056.	428227.	46779.	18035.	419806.	142894.	55092.	848033.
1988	139538.	48837.	477064.	50053.	17543.	437349.	189392.	66381.	914413.
1989	88009.	28042.	505106.	53557.	17065.	454414.	141566.	45107.	959521.
1990	110463.	31997.	537104.	57306.	16600.	471014.	167770.	48597.	1008118.
1991	132320.	34844.	571948.	61318.	16147.	487161.	193637.	50991.	1059108.
1992	154541.	36996.	608943.	65610.	15706.	502867.	220150.	52702.	1111811.
1993	144555.	31459.	640403.	70202.	15278.	518145.	214758.	46738.	1158548.
1994	140269.	27751.	668154.	75117.	14861.	533007.	215386.	42613.	1201161.
1995	160874.	28935.	697089.	80375.	14456.	547463.	241249.	43391.	1244552.
1996	175119.	28633.	725722.	86001.	14062.	561525.	261120.	42695.	1287247.
1997	181130.	26924.	752646.	92021.	13678.	575203.	273151.	40602.	1327849.
1998	196766.	26589.	779235.	98463.	13305.	588508.	295228.	39894.	1367744.
1999	254973.	31322.	810558.	105355.	12942.	601451.	360328.	44265.	1412008.
2000	204826.	22875.	833432.	112730.	12589.	614040.	317556.	35464.	1447472.
2001	93099.	9452.	842884.	120621.	12246.	626286.	213720.	21698.	1469170.
2002	125953.	11625.	854509.	129064.	11912.	638198.	255017.	23537.	1492708.
2003	148642.	12472.	866981.	138099.	11587.	649786.	286741.	24059.	1516767.
2004	141692.	10808.	877789.	147766.	11271.	661057.	289458.	22079.	1538846.
2005	141691.	9825.	887614.	158109.	10964.	672021.	299801.	20789.	1559635.
2006	170986.	10779.	898393.	169177.	10665.	682685.	340163.	21444.	1581079.
2007	199020.	11406.	909799.	181019.	10374.	693059.	380039.	21780.	1602858.
2008	212363.	11064.	920862.	193691.	10091.	703150.	406053.	21155.	1624013.
2009	232014.	10989.	931851.	207249.	9816.	712966.	439263.	20805.	1644818.
2010	293988.	12657.	944509.	221757.	9548.	722514.	515724.	22205.	1667023.

Table C.4 (Continued)

CASE 100- 9. BASELINE VOR-2ND/OMEGA FOR SELF-CONTAINED, 1/17/78 PAGE 106

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
	AFTER TAX		CUMULATIVE	NET		CUMULATIVE			CUMULATIVE
YEAR	CASH OUTLAY	PRESENT VALUE	PRESENT VALUE	CASH OUTLAY	PRESENT VALUE	PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	PRESENT VALUE
1978	37453.	34048.	34048.	67233.	61121.	61121.	104687.	95170.	95170.
1979	52514.	43400.	77448.	95067.	78568.	139689.	147581.	121968.	217137.
1980	68479.	51449.	128898.	108092.	81211.	220900.	176571.	132660.	349797.
1981	86072.	58788.	187686.	90098.	61538.	282438.	176169.	120326.	470123.
1982	73179.	45438.	233124.	55513.	34469.	316907.	128692.	79907.	550031.
1983	61633.	34790.	267914.	49014.	27667.	344574.	110647.	62457.	612488.
1984	74748.	38357.	306272.	38185.	19595.	364169.	112933.	57953.	670441.
1985	86836.	40510.	346782.	40858.	19061.	383230.	127695.	59571.	730011.
1986	94627.	40131.	386913.	43719.	18541.	401771.	138346.	58672.	788683.
1987	94605.	36474.	423387.	46779.	18035.	419806.	141383.	54509.	843193.
1988	137347.	48139.	471526.	50053.	17543.	437349.	187400.	65683.	908876.
1989	86648.	27609.	499135.	53557.	17065.	454414.	140205.	44674.	953549.
1990	108812.	31519.	530654.	57306.	16600.	471014.	166118.	48119.	1001668.
1991	130407.	34340.	564994.	61318.	16147.	487161.	191724.	50487.	1052155.
1992	152264.	36451.	601445.	65610.	15706.	502867.	217873.	52157.	1104312.
1993	142171.	30941.	632385.	70202.	15278.	518145.	212374.	46219.	1150531.
1994	137741.	27251.	659637.	75117.	14861.	533007.	212858.	42113.	1192643.
1995	157904.	28400.	688037.	80375.	14456.	547463.	238278.	42856.	1235500.
1996	171933.	28112.	716149.	86001.	14062.	561525.	257934.	42174.	1277674.
1997	177878.	26440.	742590.	92021.	13678.	575203.	269899.	40119.	1317793.
1998	193210.	26109.	768698.	98463.	13305.	588508.	291673.	39414.	1357207.
1999	250413.	30762.	799461.	105355.	12942.	601451.	355768.	43705.	1400911.
2000	200535.	22395.	821856.	112730.	12589.	614040.	313265.	34985.	1435896.
2001	91667.	9307.	831162.	120621.	12246.	626286.	212288.	21553.	1457449.
2002	124003.	11445.	842607.	129064.	11912.	638198.	253067.	23357.	1480806.
2003	146681.	12307.	854915.	138099.	11587.	649786.	284780.	23895.	1504700.
2004	139599.	10648.	865563.	147766.	11271.	661057.	287365.	21920.	1526620.
2005	139323.	9661.	875224.	158109.	10964.	672021.	297433.	20625.	1547245.
2006	168182.	10602.	885826.	169177.	10665.	682685.	337359.	21267.	1568512.
2007	195468.	11202.	897028.	181019.	10374.	693059.	376487.	21576.	1590088.
2008	208439.	10859.	907888.	193691.	10091.	703150.	402130.	20950.	1611038.
2009	227521.	10776.	918664.	207249.	9816.	712966.	434770.	20592.	1631630.
2010	288629.	12436.	931100.	221757.	9548.	722514.	510585.	21984.	1653614.

Table C.4 (Continued)

CASE 100-15. BASELINE VOR-2ND/OMEGA FOR SELF-CONTAINED. 1/17/78 PAGE 71

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	41794.	37995.	37995.	67233.	61121.	61121.	109028.	99116.	99116.
197'	57085.	47178.	85173.	95067.	78568.	139689.	152152.	125746.	224862.
1980	74027.	55618.	140791.	108092.	81211.	220900.	182119.	136829.	361690.
1981	93299.	63724.	204515.	90098.	61538.	282438.	183396.	125262.	486953.
1982	77928.	48397.	252902.	55513.	34469.	316907.	133441.	82856.	569809.
1983	64134.	36202.	289104.	49014.	27667.	344574.	113148.	63869.	633678.
1984	78664.	40367.	329471.	38185.	19595.	364169.	116850.	59962.	693640.
1985	92606.	43296.	372767.	40858.	19001.	383230.	133666.	62356.	755997.
1986	101351.	42983.	415750.	43719.	18541.	401771.	145069.	61524.	817520.
1987	101040.	38955.	454705.	46779.	18035.	419606.	147819.	56991.	874511.
1988	144891.	52336.	507241.	50053.	17543.	437349.	199944.	70079.	944590.
1989	97872.	31185.	538426.	53557.	17065.	454414.	151429.	48250.	992840.
199^	120016.	34764.	573190.	57306.	16600.	471014.	177322.	51364.	1044204.
1991	144209.	37975.	611165.	61318.	16147.	487161.	205526.	54122.	1098325.
1992	169359.	40543.	651708.	65610.	15706.	502867.	234969.	56250.	1154575.
1993	155395.	33619.	685326.	70202.	15278.	518145.	225598.	49097.	1203672.
1994	150172.	29711.	715037.	75117.	14861.	533007.	225289.	44572.	1248244.
1995	173731.	31247.	746284.	80375.	14456.	547463.	254105.	45703.	1293947.
1996	169841.	31041.	777525.	86001.	14062.	561525.	275842.	45102.	1339049.
1997	196912.	29270.	806794.	92021.	13678.	575203.	288933.	42948.	1381997.
1998	219018.	29002.	835796.	98463.	13305.	588506.	313081.	42307.	1424304.
1999	280286.	34432.	870228.	105355.	12942.	601451.	385641.	47374.	1471679.
2000	230822.	25770.	896000.	112730.	12589.	614040.	343552.	38367.	1510046.
2001	100714.	10225.	905231.	120621.	12240.	626280.	221335.	22471.	1532517.
2002	139557.	12631.	918862.	129064.	11912.	638198.	268621.	24543.	1557061.
2003	160720.	13485.	932347.	138099.	11587.	649786.	298819.	25073.	1582133.
2004	150626.	11489.	943837.	147766.	11271.	661057.	298392.	22761.	1604894.
2005	150155.	10412.	954249.	158109.	10964.	672021.	308265.	21376.	1626270.
2006	184016.	11600.	965849.	169177.	10665.	682685.	353193.	22265.	1648535.
2007	213312.	12223.	978074.	181019.	10374.	693059.	394332.	22599.	1671133.
2008	226898.	11915.	9n9989.	193691.	10091.	703150.	422389.	22006.	1693139.
2009	251043.	11918.	1001907.	207249.	9816.	713966.	458892.	21734.	1714874.
2010	321900.	13860.	1015767.	221757.	9548.	722514.	543656.	23408.	1738282.

Table C.4 (Continued)

CASE 100-16. BASELINE VOR-2ND/OMEGA FOR SELF-CONTAINED. 1/17/78 PAGE 94

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	53186.	30169.	30169.	67233.	61121.	61121.	100419.	91290.	91290.
1979	48298.	39916.	70085.	95067.	78568.	139689.	143365.	118483.	209774.
1980	63427.	47653.	117738.	108092.	81211.	220900.	171518.	128864.	338638.
1981	79525.	54317.	172055.	90098.	61538.	282438.	169623.	115854.	454492.
1982	89499.	43153.	215208.	55513.	34469.	316907.	125012.	77622.	532115.
1983	80667.	34245.	249453.	49014.	27667.	344574.	109681.	61912.	594027.
1984	71045.	30765.	280218.	38185.	19595.	364169.	109830.	56360.	650387.
1985	82352.	38416.	324636.	40858.	19001.	383230.	123210.	57479.	707866.
1986	89481.	37949.	362584.	43719.	18541.	401771.	133199.	56490.	764355.
1987	84041.	34560.	397145.	46779.	18035.	419806.	136420.	52596.	816951.
1988	127603.	44724.	441869.	50053.	17543.	437349.	177657.	62268.	879218.
1989	77686.	20747.	466616.	53557.	17065.	454414.	131223.	41812.	921030.
1990	98906.	28649.	495265.	57306.	16600.	471014.	156212.	45249.	966279.
1991	119240.	31400.	526665.	61318.	16147.	487161.	180558.	47547.	1013826.
1992	137425.	32898.	559563.	65610.	15706.	502867.	203035.	48605.	1062431.
1993	129722.	28231.	587795.	70202.	15278.	518145.	199924.	43509.	1105940.
1994	126558.	25039.	612833.	75117.	14861.	533007.	201674.	39900.	1145840.
1995	144372.	25967.	638800.	80375.	14456.	547463.	224747.	40423.	1186263.
1996	156914.	25057.	663857.	86001.	14062.	561525.	242915.	39119.	1225981.
1997	162782.	24197.	688053.	92021.	13678.	575203.	254803.	37875.	1263856.
1998	175548.	23722.	712375.	98463.	13305.	588508.	274011.	37027.	1300884.
1999	225584.	27712.	740087.	105355.	12942.	601451.	330939.	40655.	1341538.
2000	174919.	19535.	759622.	112730.	12589.	614040.	287649.	32124.	1373662.
2001	83793.	8507.	768129.	120621.	12246.	626286.	204414.	20753.	1394415.
2002	113944.	10517.	778646.	129064.	11912.	638198.	243009.	22429.	1416844.
2003	135224.	11346.	789992.	138099.	11587.	649786.	273323.	22933.	1439777.
2004	129454.	9913.	799904.	147766.	11271.	661057.	277719.	21184.	1460961.
2005	131629.	9128.	809032.	158109.	10964.	672021.	289739.	20091.	1481053.
2006	155101.	9781.	818813.	169177.	10665.	682685.	324338.	20446.	1501499.
2007	179218.	10271.	829084.	181019.	10374.	693059.	360238.	20645.	1522143.
2008	190525.	9926.	839010.	193691.	10091.	703150.	384216.	20017.	1542160.
2009	207053.	9807.	848817.	207249.	9816.	712966.	414302.	19622.	1561783.
2010	260451.	11214.	860031.	221757.	9548.	722514.	482208.	20762.	1582545.

Table C.4 (Continued)

CASE 304-18. VOR-2ND. TRANSITION TO LORAN-C (EXCEPT OCEANIC). 1/23/78 PAGE 106

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	64112.	58284.	58284.	101603.	92366.	92366.
1979	52641.	43505.	77587.	86460.	71455.	129738.	139101.	114959.	207325.
1980	68708.	51621.	129208.	98883.	74292.	204030.	167590.	125913.	333238.
1981	86467.	59056.	188266.	86274.	58926.	262956.	172740.	117984.	451222.
1982	73060.	45737.	234003.	51421.	31929.	294885.	125082.	77666.	528888.
1983	82113.	35061.	269065.	44636.	25196.	320080.	106749.	60257.	589145.
1984	75312.	28047.	307712.	35642.	18290.	338370.	110954.	56937.	646082.
1985	67581.	20857.	328569.	43737.	43729.	382100.	181318.	84586.	730668.
1986	95477.	40492.	369060.	102417.	43435.	425534.	197894.	83926.	814595.
1987	95358.	36765.	405825.	111852.	43124.	468658.	207211.	79889.	894483.
1988	138338.	48887.	454712.	122107.	42798.	511456.	260444.	91284.	985768.
1989	87323.	27824.	502136.	133249.	42457.	553913.	220572.	70281.	1056049.
1990	174430.	50526.	552662.	67370.	19515.	573426.	241799.	70041.	1126089.
1991	170078.	44767.	597429.	72085.	18982.	592410.	242164.	63749.	1189858.
1992	190901.	45700.	643129.	77131.	18465.	610875.	268032.	64165.	1254023.
1993	173741.	37811.	680960.	82531.	17961.	628836.	256272.	55772.	1309795.
1994	165059.	32656.	713616.	88308.	17471.	646307.	253367.	50127.	1359923.
1995	168327.	30872.	744488.	94469.	16995.	663302.	262815.	50867.	1410789.
1996	203901.	33339.	778827.	101104.	16531.	679833.	305004.	49871.	1460660.
1997	213279.	31703.	810530.	108181.	16060.	695913.	321460.	47783.	1508443.
1998	253601.	32916.	843448.	115754.	15042.	711555.	359355.	48560.	1557003.
1999	519240.	63787.	909235.	123856.	15215.	726770.	643103.	79003.	1636006.
2000	101089.	11556.	920792.	27305.	3049.	729820.	128994.	14406.	1650411.
2001	40532.	4115.	924707.	29217.	2966.	732786.	69749.	7081.	1657493.
2002	150807.	12073.	936780.	31262.	2685.	735471.	182069.	14958.	1672451.
2003	187323.	14039.	950819.	33450.	2507.	738475.	200774.	16846.	1689297.
2004	168119.	12624.	963443.	35792.	2730.	741208.	203911.	15554.	1704851.
2005	175837.	12193.	975636.	38297.	2656.	743864.	214135.	14849.	1719700.
2006	222643.	14035.	989671.	40978.	2583.	746447.	263621.	16618.	1736318.
2007	247100.	14161.	1003832.	43847.	2513.	748960.	290946.	16674.	1752992.
2008	257508.	13410.	1017240.	46916.	2444.	751404.	304423.	15860.	1768852.
2009	270055.	13169.	1030409.	50200.	2378.	753782.	328255.	15547.	1784399.
2010	521618.	22659.	1053076.	53714.	2313.	756094.	575332.	24772.	1809171.

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Table C.4 (Continued)

CASE 403-0. ALL REGIONS TRANSITION TO GPS. 5/18/78

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	29721.	27019.	27019.	61358.	55780.	55780.	91079.	82799.	82799.
1979	40797.	33716.	60736.	81556.	67403.	123183.	122355.	101119.	183919.
1980	51075.	38374.	99110.	86758.	65182.	188365.	137833.	103556.	287475.
1981	61112.	41741.	140850.	87258.	45938.	234303.	128370.	87679.	375153.
1982	47758.	24654.	170504.	38103.	23659.	257962.	85861.	53313.	428466.
1983	36709.	20721.	191225.	31183.	17602.	275563.	67892.	38323.	466789.
1984	42321.	21718.	212943.	23036.	12129.	287692.	65957.	33847.	500636.
1985	40146.	19527.	232470.	30068.	14027.	301719.	70214.	35554.	536190.
1986	47005.	19935.	252405.	30440.	12910.	314629.	77445.	32844.	569034.
1987	43600.	16810.	271215.	30812.	11879.	326508.	74412.	28689.	597723.
1988	61118.	21421.	292636.	31184.	10930.	337438.	92302.	32351.	630075.
1989	54167.	16887.	309523.	31556.	10055.	347493.	85723.	26941.	657016.
1990	156353.	45290.	348813.	25496.	7385.	354878.	181849.	52675.	709691.
1991	156314.	35596.	384409.	25496.	6714.	361592.	181810.	42610.	746301.
1992	138157.	33074.	417782.	25496.	6104.	367696.	163653.	39177.	785478.
1993	114164.	24845.	442628.	25496.	5549.	373244.	139660.	30394.	815872.
1994	97518.	19293.	461921.	25496.	5044.	378288.	123014.	24338.	840209.
1995	99755.	17482.	479403.	25496.	4586.	382874.	125251.	22528.	862737.
1996	97807.	15492.	495855.	25496.	4169.	387043.	123303.	20161.	882898.
1997	96053.	14278.	510133.	25496.	3790.	390833.	121549.	18067.	900965.
1998	103889.	14039.	524171.	25496.	3445.	394278.	129385.	17484.	918449.
1999	218919.	26893.	551064.	25496.	3132.	397410.	244415.	30025.	948475.
2000	30888.	3450.	554514.	1860.	208.	397618.	32748.	3657.	952132.
2001	4738.	481.	554995.	1860.	189.	397807.	6598.	670.	952802.
2002	35400.	3313.	558308.	1860.	172.	397978.	37760.	3485.	956287.
2003	45069.	3832.	562140.	1860.	156.	398134.	47529.	3988.	960275.
2004	43173.	3295.	565433.	1860.	142.	398276.	45033.	3435.	963710.
2005	43026.	2984.	568417.	1860.	129.	398405.	44886.	3113.	966822.
2006	56022.	3532.	571949.	1860.	117.	398523.	57882.	3649.	970471.
2007	58510.	3353.	575302.	1860.	107.	398629.	60370.	3460.	973931.
2008	56390.	2938.	578240.	1860.	97.	398726.	58250.	3035.	976966.
2009	56049.	2663.	580923.	1860.	88.	398814.	58509.	2771.	979737.
2010	103142.	4441.	585364.	1860.	80.	398894.	105002.	4521.	984258.

Table C.4 (Continued)

CASE 803- 1.- VOR-2ND/OMEGA, ALL REGIONS TRANSITION-TO GPS(A), 1/17/78 PAGE 87

COMBINED-FAA/USER-EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
	AFTER TAX		CUMULATIVE	NET		CUMULATIVE			CUMULATIVE
YEAR	CASH OUTLAY	PRESENT VALUE	PRESENT VALUE	CASH OUTLAY	PRESENT VALUE	PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	PRESENT VALUE
1978	66900.	60819.	60819.	65653.	59684.	59684.	132553.	120503.	120503.
1979	84080.	69468.	130306.	93375.	77170.	136854.	177455.	146657.	267160.
1980	102916.	77322.	207628.	106282.	79851.	216705.	209198.	157174.	424334.
1981	124565.	85079.	292708.	88161.	60215.	276920.	212726.	145295.	569628.
1982	113006.	70168.	362876.	53441.	33183.	310103.	166447.	103350.	672979.
1983	101859.	57497.	420372.	46797.	26416.	336519.	148656.	83912.	756891.
1984	117828.	60464.	480837.	37954.	19477.	355995.	155782.	79941.	836832.
1985	134754.	62864.	543701.	51662.	24101.	380096.	186417.	86965.	923797.
1986	146833.	62272.	605972.	55963.	23734.	403830.	202796.	86005.	1009802.
1987	149187.	57518.	663490.	60612.	23368.	427198.	209798.	80886.	1090688.
1988	199974.	70090.	733580.	65638.	23006.	450204.	265611.	93095.	1183783.
1989	146945.	46821.	780401.	71070.	22645.	472849.	218016.	69466.	1253250.
1990	485525.	140639.	921040.	61441.	17797.	490646.	546966.	158437.	1411686.
1991	476429.	125459.	1046499.	65742.	17312.	507958.	542172.	142771.	1554457.
1992	527736.	126336.	1172835.	70344.	16840.	524798.	598080.	143176.	1697633.
1993	500848.	108999.	1281834.	75268.	16381.	541179.	576116.	125380.	1823012.
1994	491062.	97154.	1378988.	80537.	15934.	557112.	571599.	113088.	1936100.
1995	541560.	97404.	1476392.	86175.	15499.	572612.	627735.	112904.	2049004.
1996	587108.	95997.	1572389.	92207.	15077.	587688.	679315.	111073.	2160077.
1997	611279.	90863.	1663252.	98661.	14665.	602354.	709941.	105528.	2265605.
1998	686745.	92800.	1756052.	105568.	14265.	616619.	792313.	107066.	2372671.
1999	1308026.	160686.	1916738.	112958.	13876.	630496.	1420984.	174562.	2547233.
2000	429414.	47956.	1964694.	8817.	985.	631480.	438231.	48941.	2596174.
2001	290358.	29479.	1994173.	9435.	958.	632438.	299793.	30437.	2626611.
2002	468462.	43237.	2037410.	10095.	932.	633370.	478557.	44169.	2670780.
2003	539863.	45297.	2082707.	10802.	906.	634276.	550665.	46204.	2716983.
2004	541230.	41284.	2123991.	11558.	882.	635158.	552788.	42165.	2759149.
2005	551395.	38236.	2162227.	12367.	858.	636015.	563762.	39093.	2798242.
2006	609916.	38449.	2200675.	13233.	834.	636849.	623148.	39283.	2837525.
2007	670075.	38401.	2239076.	14159.	811.	637661.	684233.	39212.	2876737.
2008	712017.	37095.	2276172.	15150.	789.	638450.	727167.	37884.	2914622.
2009	768076.	36378.	2312550.	16210.	768.	639218.	784287.	37146.	2951767.
2010	1305485.	56210.	2368760.	17345.	747.	639965.	1322831.	56957.	3008724.

Table C.4 (Continued)

CASE 403- 2. -VOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/17/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE 10 PERCENT

	U S E R S			F A A			T O T A L		
	AFTER TAX		CUMULATIVE	NET		CUMULATIVE			CUMULATIVE
YEAR	CASH OUTLAY	PRESENT VALUE	PRESENT VALUE	CASH OUTLAY	PRESENT VALUE	PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	PRESENT VALUE
1978	70582.	64166.	64166.	65653.	59684.	59684.	136235.	123850.	123850.
1979	93674.	77416.	141582.	93375.	77170.	136854.	187049.	154586.	278436.
1980	121038.	90938.	232520.	106282.	79851.	216705.	227320.	170789.	449225.
1981	154748.	105695.	338215.	88161.	60215.	276920.	242909.	165910.	615135.
1982	148404.	92147.	430362.	53441.	33183.	310103.	201845.	125330.	740465.
1983	141255.	79735.	510096.	46797.	26416.	336519.	188051.	106150.	846615.
1984	172313.	88424.	598520.	37954.	19477.	355995.	210267.	107900.	954515.
1985	208125.	97092.	695612.	51662.	24101.	380096.	259787.	121193.	1075708.
1986	239285.	101480.	797092.	55963.	23734.	403830.	295247.	125214.	1200921.
1987	256013.	98704.	895796.	60612.	23368.	427198.	316625.	122073.	1322994.
1988	361298.	126633.	1022429.	65638.	23006.	450204.	426936.	149638.	1472633.
1989	280216.	89285.	1111714.	71070.	22645.	472849.	351286.	111931.	1584563.
1990	1806062.	540532.	1652246.	61441.	17797.	490646.	1927503.	558329.	2142892.
1991	2290079.	603050.	2255295.	65742.	17312.	507958.	2355822.	620362.	2763254.
1992	2762235.	661257.	2916553.	70344.	16840.	524798.	2832580.	678097.	3441351.
1993	2793740.	607999.	3524552.	75268.	16381.	541179.	2869008.	624380.	4065731.
1994	2913674.	576455.	4101007.	80537.	15934.	557112.	2994212.	592389.	4658119.
1995	3409809.	613284.	4714291.	86175.	15499.	572612.	3495983.	628783.	5286903.
1996	3914607.	640070.	5354361.	92207.	15077.	587688.	4006814.	655146.	5942049.
1997	4313040.	641106.	5995466.	98661.	14665.	602354.	4411701.	655771.	6597820.
1998	5121784.	692110.	6687576.	105568.	14265.	616619.	5227352.	706375.	7304195.
1999	10286815.	1263694.	7951270.	112958.	13876.	630496.	10399772.	1277570.	8581766.
2000	3558560.	397413.	8348684.	8817.	985.	631480.	3567378.	398398.	8980164.
2001	2535515.	257420.	8606103.	9435.	958.	632438.	2544950.	258378.	9238541.
2002	4310625.	397854.	9003957.	10095.	932.	633370.	4320720.	398785.	9637327.
2003	5234601.	439212.	9443168.	10802.	906.	634276.	5245403.	440118.	10077444.
2004	5529878.	421806.	9864975.	11558.	882.	635158.	5541436.	422688.	10500132.
2005	5936498.	411657.	10276631.	12367.	858.	636015.	5948865.	412514.	10912647.
2006	6919442.	436198.	10712829.	13233.	834.	636849.	6932674.	437032.	11349678.
2007	8010471.	459069.	11171897.	14159.	811.	637661.	8024630.	459880.	11809558.
2008	8969314.	467290.	11639187.	15150.	789.	638450.	8984463.	468079.	12277637.
2009	10195458.	482882.	12122069.	16210.	768.	639218.	10211668.	483650.	12761286.
2010	18260316.	786230.	12908299.	17345.	747.	639965.	18277661.	786977.	13548263.

Table C.4 (Continued)

CASE 403- 3. VOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/17/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DULLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
	AFTER TAX		CUMULATIVE	NET		CUMULATIVE			CUMULATIVE
YEAR	CASH OUTLAY	PRESENT VALUE	PRESENT VALUE	CASH OUTLAY	PRESENT VALUE	PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	PRESENT VALUE
1978	34013.	30921.	30921.	65653.	59684.	59684.	99666.	90605.	90605.
1979	47117.	38940.	69860.	93375.	77170.	136854.	140492.	116109.	206714.
1980	60238.	45258.	115118.	106282.	79851.	216705.	166520.	125109.	331823.
1981	73999.	50543.	165661.	88161.	60215.	276920.	162161.	110758.	442581.
1982	80655.	37662.	203323.	53441.	33183.	310103.	114096.	70844.	513426.
1983	49090.	27710.	231033.	46797.	26416.	336519.	95887.	54126.	567551.
1984	58096.	29812.	260845.	37954.	19477.	355995.	96050.	49289.	616840.
1985	65588.	30597.	291442.	51662.	24101.	380096.	117250.	54698.	671538.
1986	69315.	29396.	320838.	55963.	23734.	403830.	125278.	53130.	724668.
1987	66946.	25811.	346649.	60612.	23368.	427198.	127558.	49179.	773847.
1988	95412.	33441.	380090.	65638.	23006.	450204.	161049.	56447.	830294.
1989	57139.	18206.	398297.	71070.	22645.	472849.	128210.	40852.	871145.
1990	256142.	74195.	472492.	61441.	17797.	490646.	317583.	91993.	963138.
1991	232667.	61268.	533760.	65742.	17312.	507958.	298409.	78580.	1041718.
1992	245142.	58685.	592445.	70344.	16840.	524798.	315486.	75525.	1117243.
1993	212028.	46143.	638589.	75268.	16381.	541179.	287296.	62524.	1179767.
1994	190107.	37612.	676200.	80537.	15934.	557112.	270644.	53545.	1233313.
1995	202482.	36418.	712619.	86175.	15499.	572612.	288657.	51918.	1285230.
1996	207965.	34004.	746623.	92207.	15077.	587688.	300172.	49080.	1334311.
1997	211370.	31419.	778041.	98661.	14665.	602354.	310032.	46084.	1380395.
1998	235768.	31860.	809901.	105568.	14265.	616619.	341336.	46125.	1426520.
1999	501517.	61609.	871510.	112958.	13876.	630496.	614475.	75486.	1502006.
2000	84061.	9388.	880898.	8817.	985.	631480.	92878.	10372.	1512378.
2001	24638.	2501.	883399.	9435.	958.	632438.	34073.	3459.	1515837.
2002	103319.	9536.	892935.	10095.	932.	633370.	113414.	10468.	1526305.
2003	152017.	11077.	904012.	10802.	906.	634276.	142819.	11983.	1538288.
2004	129569.	9883.	913895.	11558.	882.	635158.	141127.	10765.	1549053.
2005	132634.	9197.	923093.	12367.	858.	636015.	145001.	10055.	1559108.
2006	169162.	10664.	933757.	13233.	834.	636849.	182395.	11498.	1570606.
2007	182503.	10459.	944216.	14159.	811.	637661.	196662.	11270.	1581877.
2008	183554.	9563.	953779.	15150.	789.	638450.	198704.	10352.	1592229.
2009	191403.	9065.	962844.	16210.	768.	639218.	207613.	9833.	1602062.
2010	354249.	15253.	978097.	17345.	747.	639965.	371594.	16000.	1618061.

Table C.4 (Continued)

CASE 803- 4. VOR-2ND/OMEGA, ALL REGIONS TRANSITION TO OPS(A). 1/17/78 PAGE 07

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	39871.	36246.	36246.	65653.	59684.	59684.	105523.	95930.	95930.
1979	56645.	46814.	83060.	93375.	77170.	136854.	150020.	123984.	219914.
1980	75112.	56432.	139492.	106282.	79851.	216705.	181394.	136284.	356198.
1981	96224.	65722.	205215.	88161.	60215.	276920.	184385.	125937.	482135.
1982	84166.	52261.	257475.	53441.	33183.	310103.	137607.	85443.	567578.
1983	72975.	41192.	298668.	46797.	26416.	336519.	119772.	67608.	635186.
1984	90084.	46227.	344895.	37954.	19477.	355995.	128038.	65704.	700890.
1985	106979.	49906.	394801.	51662.	24101.	380096.	158641.	74007.	774897.
1986	119199.	50552.	445353.	55963.	23734.	403830.	175162.	74286.	849183.
1987	121863.	46484.	492337.	60612.	23368.	427198.	182475.	70352.	919535.
1988	179292.	62841.	555177.	65638.	23006.	450204.	244929.	85846.	1005381.
1989	117175.	37336.	592513.	71070.	22645.	472849.	188245.	59981.	1065362.
1990	520261.	150701.	743214.	61441.	17797.	490646.	581703.	168499.	1233861.
1991	500885.	131899.	875113.	65742.	17312.	507958.	566627.	149211.	1383071.
1992	557945.	133568.	1008681.	70344.	16840.	524798.	628289.	150407.	1533479.
1993	514159.	111896.	1120577.	75268.	16381.	541179.	589428.	128277.	1661755.
1994	492448.	97428.	1218005.	80537.	15934.	557112.	572985.	113362.	1775117.
1995	555128.	99845.	1317849.	86175.	15499.	572612.	641302.	115344.	1890461.
1996	606872.	99228.	1417078.	92207.	15077.	587688.	699079.	114305.	2004766.
1997	648838.	96446.	1513523.	98661.	14665.	602354.	747499.	111111.	2115877.
1998	758377.	102480.	1616003.	105568.	14265.	616619.	863945.	116745.	2232622.
1999	1650784.	202792.	1818795.	112958.	13876.	630496.	1763741.	216669.	2449291.
2000	334232.	37326.	1856122.	8817.	985.	631480.	343049.	38311.	2487602.
2001	144479.	14668.	1870790.	9435.	958.	632438.	153913.	15626.	2503228.
2002	449116.	41452.	1912242.	10095.	932.	633370.	459211.	42383.	2545612.
2003	586628.	49221.	1961463.	10802.	906.	634276.	597430.	50128.	2595739.
2004	606692.	46277.	2007740.	11558.	882.	635158.	618250.	47159.	2642898.
2005	648069.	44939.	2052679.	12367.	858.	636015.	660436.	45797.	2688695.
2006	824506.	51976.	2104656.	13233.	834.	636849.	837738.	52811.	2741505.
2007	933956.	53524.	2158179.	14159.	811.	637661.	948115.	54335.	2795840.
2008	996606.	51922.	2210101.	15150.	789.	638450.	1011756.	52711.	2848551.
2009	1096451.	51931.	2262032.	16210.	768.	639218.	1112661.	52698.	2901250.
2010	2092167.	90082.	2352114.	17345.	747.	639965.	2109512.	90829.	2992079.

Table C.4 (Continued)

CASE 403- 5. VOR-2ND/OMEGA, ALL REGIONS TRANSITION TO GPS(A). 1/17/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	40489.	36808.	36808.	67493.	61358.	61358.	107982.	98166.	98166.
1979	57716.	47699.	84507.	98685.	81558.	142915.	156401.	129257.	227422.
1980	76862.	57747.	142254.	115474.	86758.	229673.	192336.	144505.	371927.
1981	98937.	67576.	209830.	98472.	67258.	296931.	197409.	134833.	506760.
1982	87136.	54104.	263934.	61365.	38103.	335033.	148500.	92207.	598967.
1983	76095.	42954.	306888.	55242.	31183.	366216.	131337.	74137.	673104.
1984	94390.	48437.	355325.	46060.	23636.	389852.	140450.	72073.	745177.
1985	112714.	52582.	407907.	64453.	30068.	419920.	177168.	82650.	827827.
1986	126313.	53569.	461476.	71776.	30440.	450360.	198089.	84009.	911836.
1987	129929.	50093.	511569.	79918.	30812.	481172.	209847.	80905.	992741.
1988	191902.	67260.	578830.	88972.	31184.	512356.	280873.	98444.	1091186.
1989	126534.	40318.	619147.	99036.	31556.	543912.	225571.	71874.	1163059.
1990	561847.	162747.	781894.	88019.	25496.	569408.	649866.	188243.	1351302.
1991	544324.	143338.	925232.	96821.	25496.	594904.	641145.	168834.	1520136.
1992	610004.	146030.	1071262.	106503.	25496.	620400.	716507.	171526.	1691662.
1993	565944.	123166.	1194428.	117153.	25496.	645896.	683097.	148662.	1840324.
1994	545832.	107990.	1302418.	128869.	25496.	671392.	674700.	133486.	1973810.
1995	619067.	111345.	1413762.	141756.	25496.	696888.	760822.	136841.	2110650.
1996	681221.	111385.	1525148.	155931.	25496.	722384.	837152.	136881.	2247531.
1997	732393.	108866.	1634013.	171524.	25496.	747880.	903918.	134362.	2381893.
1998	860512.	116282.	1750295.	188677.	25496.	773376.	1049189.	141778.	2523671.
1999	1878791.	230802.	1981097.	207544.	25496.	798872.	2086336.	256298.	2779969.
2000	387171.	43239.	2024335.	16655.	1860.	800732.	403826.	45099.	2825067.
2001	172210.	17484.	2041819.	18320.	1860.	802592.	190531.	19344.	2844411.
2002	525518.	48503.	2090322.	20153.	1860.	804452.	545670.	50363.	2894774.
2003	688561.	57774.	2148096.	22168.	1860.	806312.	710729.	59634.	2954408.
2004	716130.	54625.	2202721.	24385.	1860.	808172.	740515.	56485.	3010893.
2005	768678.	53303.	2256024.	26823.	1860.	810032.	795501.	55163.	3066055.
2006	979021.	61717.	2317741.	29505.	1860.	811892.	1008526.	63577.	3129632.
2007	1114996.	63899.	2381639.	32456.	1860.	813752.	1147451.	65759.	3195391.
2008	1197326.	62379.	2444018.	35701.	1860.	815612.	1233028.	64239.	3259630.
2009	1324974.	62754.	2506772.	39272.	1860.	817472.	1364245.	64614.	3324244.
2010	2537595.	109261.	2616033.	43199.	1860.	819332.	2580794.	111121.	3435365.

Table C.4 (Continued)

CASE 403- 6. VOR-2ND/OMEGA, ALL REGIONS TRANSITION TO GPS(A). 1/17/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	34309.	31190.	31190.	63812.	58011.	58011.	98121.	89201.	89201.
1979	47573.	39316.	70507.	88213.	72903.	130914.	135786.	112219.	201420.
1980	60921.	45771.	116277.	97591.	73321.	204235.	158511.	119092.	320512.
1981	74985.	51216.	167493.	78682.	53741.	257976.	153667.	104957.	425469.
1982	61665.	38289.	205782.	46358.	28784.	286761.	108023.	67074.	492543.
1983	50084.	28271.	234053.	39456.	22272.	309032.	89540.	50543.	543086.
1984	59388.	30475.	264529.	31103.	15961.	324993.	90491.	46436.	589522.
1985	67213.	31355.	295884.	41150.	19197.	344190.	108363.	50552.	640074.
1986	71218.	30203.	326087.	43326.	18374.	362565.	114543.	48578.	688652.
1987	68979.	26594.	352682.	45609.	17584.	380149.	114588.	44179.	732831.
1988	98443.	34504.	387185.	48006.	16826.	396975.	146450.	51330.	784160.
1989	59220.	18871.	406057.	50522.	16098.	413073.	109748.	34969.	819129.
1990	265238.	76830.	482887.	42453.	12297.	425370.	307691.	89127.	908256.
1991	241624.	63627.	546514.	44151.	11626.	436996.	285775.	75254.	983510.
1992	255279.	61112.	607626.	45917.	10992.	447988.	301196.	72104.	1055614.
1993	221498.	48204.	655830.	47754.	10393.	458381.	269252.	58597.	1114211.
1994	199262.	39423.	695253.	49664.	9826.	468206.	248926.	49249.	1163459.
1995	212834.	38280.	733533.	51650.	9290.	477496.	264484.	47570.	1211029.
1996	219291.	35856.	769389.	53716.	8783.	486279.	273008.	44639.	1255668.
1997	223431.	33212.	802601.	55865.	8304.	494583.	279296.	41516.	1297184.
1998	249781.	33753.	836354.	58099.	7851.	502434.	307880.	41604.	1338788.
1999	531801.	65330.	901683.	60423.	7423.	509857.	592225.	72752.	1411540.
2000	90092.	10061.	911744.	4584.	512.	510369.	94676.	10573.	1422113.
2001	27143.	2756.	914500.	4768.	484.	510853.	31910.	3240.	1425353.
2002	111198.	10263.	924763.	4958.	458.	511311.	116156.	10721.	1436074.
2003	142188.	11930.	936694.	5157.	433.	511743.	147344.	12363.	1448437.
2004	139915.	10672.	947366.	5363.	409.	512152.	145278.	11081.	1459518.
2005	143512.	9952.	957318.	5578.	387.	512539.	149089.	10338.	1469857.
2006	182896.	11530.	968847.	5801.	366.	512905.	188697.	11895.	1481752.
2007	197784.	11335.	980182.	6033.	346.	513251.	203816.	11680.	1493432.
2008	199513.	10394.	990576.	6274.	327.	513577.	205787.	10721.	1504154.
2009	208594.	9879.	1000456.	6525.	309.	513886.	215119.	10189.	1514342.
2010	386579.	16845.	1017101.	6786.	292.	514179.	393365.	16937.	1531279.

Table C.4 (Continued)

CASE 403- 7. VOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/17/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37370.	33973.	33973.	65653.	59684.	59684.	103023.	93657.	93657.
1979	52142.	43092.	77065.	93375.	77170.	136854.	145517.	120262.	213919.
1980	67588.	50780.	127845.	106282.	79851.	216705.	173870.	130631.	344550.
1981	84465.	57691.	185536.	86161.	60215.	276920.	172626.	117906.	462456.
1982	71413.	44342.	229878.	53441.	33183.	310103.	124854.	77525.	539981.
1983	59786.	33748.	263625.	46797.	26416.	336519.	106583.	60163.	600144.
1984	72109.	37003.	300629.	37954.	19477.	355995.	110064.	56480.	656624.
1985	83383.	38899.	339527.	51662.	24101.	380096.	135045.	62999.	719623.
1986	90254.	38276.	377804.	55963.	23734.	403830.	146216.	62010.	781633.
1987	89375.	34458.	412262.	60612.	23368.	427198.	149987.	57827.	839460.
1988	128673.	45099.	457360.	65638.	23006.	450204.	194310.	68105.	907564.
1989	80397.	25617.	482977.	71070.	22645.	472849.	151467.	48262.	955826.
1990	384238.	112748.	595726.	61441.	17797.	490646.	450679.	130546.	1086372.
1991	342538.	90201.	685927.	65742.	17312.	507958.	408280.	107513.	1193885.
1992	346558.	82963.	768890.	70344.	16840.	524798.	416903.	99803.	1293688.
1993	295506.	64311.	833201.	75268.	16381.	541179.	370774.	80691.	1374379.
1994	265495.	52527.	885727.	80537.	15934.	557112.	346032.	68461.	1442840.
1995	282656.	50838.	936566.	86175.	15499.	572612.	368831.	66337.	1509177.
1996	291808.	47713.	984279.	92207.	15077.	587688.	384015.	62790.	1571967.
1997	299563.	44528.	1028807.	98661.	14665.	602354.	398224.	59193.	1631160.
1998	345337.	46666.	1075472.	105568.	14265.	616619.	450905.	60931.	1692091.
1999	754262.	92658.	1168130.	112958.	13876.	630496.	867219.	106534.	1798626.
2000	120426.	13449.	1181579.	8817.	985.	631480.	129243.	14434.	1813059.
2001	24050.	2442.	1184021.	9435.	958.	632438.	33484.	3400.	1816459.
2002	144081.	13296.	1197319.	10095.	932.	633370.	154176.	14230.	1830689.
2003	192752.	16173.	1213492.	10802.	906.	634276.	203554.	17079.	1847768.
2004	203227.	15502.	1228994.	11558.	882.	635158.	214785.	16383.	1864151.
2005	219770.	15240.	1244233.	12367.	858.	636015.	232137.	16097.	1880248.
2006	284590.	17940.	1262174.	13233.	834.	636849.	297822.	18775.	1899023.
2007	314799.	18041.	1280214.	14159.	811.	637661.	328958.	18852.	1917875.
2008	324672.	16915.	1297129.	15150.	789.	638450.	339821.	17704.	1935579.
2009	345701.	16373.	1313502.	16210.	768.	639218.	361911.	17141.	1952720.
2010	639583.	27538.	1341041.	17345.	747.	639965.	656928.	28285.	1981005.

Table C.4 (Continued)

CASE 403- 8, VOR-2ND/OMEGA, ALL REGIONS TRANSITION TO CPS(A), 1/17/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
	AFTER TAX		CUMULATIVE	NET		CUMULATIVE			CUMULATIVE
YEAR	CASH OUTLAY	PRESENT VALUE	PRESENT VALUE	CASH OUTLAY	PRESENT VALUE	PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	PRESENT VALUE
1978	37527.	34115.	34115.	65653.	59684.	59684.	103179.	93799.	93799.
1979	52761.	43604.	77719.	93375.	77170.	136854.	146137.	120774.	214573.
1980	68928.	51786.	129506.	106282.	79851.	216705.	175210.	131638.	346211.
1981	86851.	59320.	188826.	88161.	60215.	276920.	175012.	119535.	465746.
1982	74131.	46030.	234856.	53441.	33183.	310103.	127572.	79212.	544959.
1983	62586.	35328.	270184.	46797.	26416.	336519.	109383.	61744.	606702.
1984	75870.	38933.	309117.	37954.	19477.	355995.	113824.	58410.	665112.
1985	88320.	41202.	350319.	51662.	24101.	380096.	139983.	65303.	730415.
1986	96324.	40851.	391170.	55963.	23734.	403830.	152287.	64585.	795000.
1987	96115.	37056.	428227.	60612.	23368.	427198.	156727.	60425.	855425.
1988	139338.	48837.	477064.	65638.	23006.	450204.	204976.	71843.	927268.
1989	88009.	28042.	505106.	71070.	22645.	472849.	159079.	50688.	977955.
1990	562951.	163067.	668173.	61441.	17797.	490646.	624392.	180864.	1158819.
1991	585688.	154230.	822403.	65742.	17312.	507958.	651430.	171542.	1330361.
1992	644924.	154390.	976793.	70344.	16840.	524798.	715268.	171230.	1501591.
1993	581925.	126644.	1103437.	75268.	16381.	541179.	657193.	143024.	1644615.
1994	543425.	107514.	1210950.	80537.	15934.	557112.	623963.	123448.	1768063.
1995	593822.	106804.	1317754.	86175.	15499.	572612.	679997.	122303.	1890366.
1996	630119.	103029.	1420784.	92207.	15077.	587688.	722326.	118106.	2008472.
1997	656079.	97522.	1518306.	98661.	14665.	602354.	754740.	112187.	2120660.
1998	750940.	101475.	1619781.	105568.	14265.	616619.	856508.	115740.	2236400.
1999	1612928.	198142.	1817923.	112958.	13876.	630496.	1725886.	212018.	2448418.
2000	304931.	34054.	1851977.	8817.	985.	631480.	313748.	35039.	2483457.
2001	116392.	11817.	1863793.	9435.	958.	632438.	125826.	12775.	2496231.
2002	393241.	36295.	1900088.	10095.	932.	633370.	403336.	37226.	2533458.
2003	507795.	42607.	1942695.	10802.	906.	634276.	518596.	43513.	2576971.
2004	513873.	39197.	1981892.	11558.	882.	635158.	525430.	40079.	2617049.
2005	539075.	37381.	2019273.	12367.	858.	636015.	551441.	38239.	2655288.
2006	684481.	43149.	2062422.	13233.	834.	636849.	697713.	43983.	2699272.
2007	759709.	43538.	2105960.	14159.	811.	637661.	773868.	44349.	2743621.
2008	791295.	41225.	2147185.	15150.	789.	638450.	806445.	42015.	2785636.
2009	851509.	40330.	2187515.	16210.	768.	639218.	867720.	41097.	2826733.
2010	1603112.	69025.	2256540.	17345.	747.	639965.	1620458.	69772.	2896505.

Table C.4 (Continued)

CASE 803- 9. VOR-2ND/OMEGA, ALL REGIONS TRANSITION TO GPS(A). 1/17/78 PAGE 87

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37453.	34048.	34048.	65653.	59684.	59684.	103106.	93733.	93733.
1979	52514.	43400.	77448.	93375.	77170.	136854.	145890.	120570.	214302.
1980	68479.	51449.	128898.	106282.	79851.	216705.	174761.	131300.	345603.
1981	86072.	58788.	187686.	88161.	60215.	276920.	174233.	119003.	464606.
1982	73179.	45438.	233124.	53441.	33183.	310103.	126620.	78621.	543227.
1983	61633.	34790.	267914.	46797.	26416.	336519.	108430.	61206.	604433.
1984	74748.	38357.	306272.	37954.	19477.	355995.	112702.	57834.	662267.
1985	86836.	40510.	346782.	51662.	24101.	380096.	138499.	64611.	726877.
1986	94627.	40131.	386913.	55963.	23734.	403830.	150590.	63865.	790742.
1987	94605.	36474.	423387.	60612.	23368.	427198.	155216.	59843.	850585.
1988	137347.	48139.	471526.	65638.	23006.	450204.	202985.	71145.	921730.
1989	86648.	27609.	499135.	71070.	22645.	472849.	157718.	50254.	971984.
1990	262174.	75943.	575077.	61441.	17797.	490646.	323616.	93740.	1065724.
1991	216699.	57064.	632141.	65742.	17312.	507958.	282441.	74376.	1140099.
1992	233448.	55886.	688027.	70344.	16840.	524798.	303792.	72725.	1212825.
1993	208706.	45421.	733447.	75268.	16381.	541179.	283974.	61801.	1274626.
1994	194861.	38556.	772003.	80537.	15934.	557112.	275418.	54490.	1329116.
1995	218188.	39243.	811246.	86175.	15499.	572612.	304362.	54742.	1383858.
1996	234822.	38395.	849642.	92207.	15077.	587688.	327029.	53472.	1437330.
1997	247864.	36843.	886485.	98661.	14665.	602354.	346525.	51509.	1488839.
1998	284630.	38462.	924947.	105568.	14265.	616619.	390198.	52728.	1541566.
1999	614929.	75542.	1000489.	112958.	13876.	630496.	727886.	89418.	1630984.
2000	115491.	12698.	1013187.	8817.	985.	631480.	124308.	13883.	1644867.
2001	43852.	4452.	1017639.	9435.	958.	632438.	53286.	5410.	1650277.
2002	150023.	13847.	1031485.	10095.	932.	633370.	160118.	14778.	1665055.
2003	194032.	16280.	1047766.	10802.	906.	634276.	204834.	17187.	1682242.
2004	196458.	14985.	1062951.	11558.	882.	635158.	208015.	15867.	1698109.
2005	206115.	14293.	1077244.	12367.	858.	636015.	218482.	15150.	1713259.
2006	261711.	16498.	1093742.	13233.	834.	636849.	274944.	17332.	1730591.
2007	290475.	16647.	1110388.	14159.	811.	637661.	304634.	17458.	1748049.
2008	302552.	15763.	1126151.	15150.	789.	638450.	317702.	16552.	1764601.
2009	325575.	15420.	1141571.	16210.	768.	639218.	341785.	16188.	1780789.
2010	612950.	26392.	1167963.	17345.	747.	639965.	630295.	27138.	1807927.

Table C.4 (Continued)

CASE 403-10. VOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/17/78 PAGE 94

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52041.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51621.	129208.	106282.	79851.	216705.	174989.	131472.	345913.
1981	80467.	59058.	188266.	88161.	60215.	276920.	174628.	119273.	465186.
1982	73660.	45737.	234003.	53441.	33183.	310104.	127101.	78920.	544106.
1983	62115.	35061.	269065.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38647.	307712.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87581.	40057.	348569.	51662.	24101.	380096.	139243.	64958.	728665.
1986	95477.	40492.	389060.	55963.	23734.	403830.	151440.	64225.	792890.
1987	95358.	36765.	425825.	60612.	23368.	427198.	155970.	60133.	853023.
1988	138338.	48487.	474312.	65638.	23006.	450204.	203975.	71492.	924515.
1989	87323.	27824.	502136.	71070.	22645.	472849.	158393.	50469.	974984.
1990	280061.	81124.	583259.	61441.	17797.	490646.	341502.	98921.	1073906.
1991	264035.	69529.	652788.	65742.	17312.	507956.	329777.	86841.	1160746.
1992	289979.	69419.	722207.	70344.	16840.	524796.	360324.	86259.	1247005.
1993	261414.	56891.	779098.	75266.	16381.	541179.	336682.	73272.	1320277.
1994	245184.	48506.	827606.	80537.	15934.	557112.	325721.	64442.	1384719.
1995	273008.	40103.	876709.	86175.	15499.	572612.	359183.	64602.	1449321.
1996	292457.	47901.	924610.	92207.	15077.	587688.	385164.	62977.	1512298.
1997	306691.	45588.	970198.	98661.	14665.	602354.	405353.	60253.	1572551.
1998	351512.	47500.	1017698.	105568.	14265.	616619.	457080.	61765.	1634317.
1999	757041.	92999.	1110697.	112958.	13876.	630496.	869998.	106876.	1741193.
2000	142075.	15934.	1126631.	8817.	985.	631480.	151492.	16918.	1758111.
2001	54322.	5515.	1132146.	9435.	958.	632438.	63756.	6473.	1764584.
2002	184625.	17040.	1149186.	10095.	932.	633370.	194720.	17972.	1782556.
2003	238588.	20019.	1169205.	10802.	906.	634276.	249390.	20925.	1803481.
2004	241505.	18421.	1187626.	11558.	882.	635158.	253063.	19303.	1822784.
2005	253363.	17569.	1205195.	12367.	858.	636015.	265730.	18427.	1841211.
2006	321703.	20280.	1225475.	13229.	834.	636849.	334936.	21114.	1862325.
2007	357060.	20463.	1245938.	14159.	811.	637661.	371219.	21274.	1883599.
2008	371905.	19376.	1265314.	15150.	789.	638450.	387055.	20165.	1903764.
2009	400200.	18955.	1284268.	16210.	768.	639218.	416416.	19722.	1923486.
2010	753456.	32441.	1316710.	17345.	747.	639965.	770801.	33188.	1956674.

Table C.4 (Continued)

CASE 403-11. VOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/17/78 PAGE 94

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51821.	129208.	106282.	79851.	216705.	174989.	131472.	345913.
1981	86467.	59058.	188266.	88161.	60215.	276920.	174628.	119273.	465186.
1982	73660.	45737.	234003.	53441.	33183.	310103.	127101.	78920.	544106.
1983	62113.	35061.	269065.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38647.	307712.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87581.	40857.	348569.	51662.	24101.	380096.	139243.	64958.	728665.
1986	95477.	40492.	389060.	55963.	23734.	403830.	151440.	64225.	792890.
1987	95356.	36765.	425825.	60612.	23368.	427198.	155970.	60133.	853023.
1988	138338.	48487.	474312.	65638.	23006.	450204.	203975.	71492.	924515.
1989	87323.	27824.	502136.	71070.	22645.	472849.	158393.	50469.	974984.
1990	171788.	49761.	551896.	61441.	17797.	490646.	233229.	67558.	1042543.
1991	163035.	42932.	594829.	65742.	17312.	507958.	228777.	60244.	1102787.
1992	182571.	43706.	638534.	70344.	16840.	524798.	252915.	60546.	1163333.
1993	165989.	36124.	674659.	75268.	16381.	541179.	241257.	52505.	1215837.
1994	157637.	31185.	705846.	80537.	15934.	557112.	238174.	47122.	1262959.
1995	179565.	32290.	738143.	86175.	15499.	572612.	265740.	47796.	1310754.
1996	195305.	31934.	770076.	92207.	15077.	587688.	287512.	47010.	1357765.
1997	204461.	30392.	800468.	98661.	14665.	602354.	303122.	45057.	1402822.
1998	234341.	31667.	832135.	105568.	14265.	616619.	339909.	45932.	1448754.
1999	306694.	36000.	868135.	112958.	13876.	630496.	417651.	75876.	1524630.
2000	95117.	10622.	904757.	8817.	985.	631480.	103934.	11607.	1536237.
2001	36215.	3677.	908434.	9435.	958.	632438.	45649.	4635.	1540872.
2002	125064.	11300.	919794.	10045.	932.	633370.	135179.	12292.	1553164.
2003	159059.	13340.	933140.	10802.	906.	634276.	169861.	14252.	1567416.
2004	161003.	12281.	945421.	11558.	882.	635156.	172561.	13163.	1580578.
2005	166909.	11715.	957133.	12367.	858.	636015.	181275.	12570.	1593149.
2006	214469.	13520.	970653.	13233.	834.	636849.	227701.	14354.	1607503.
2007	236040.	13642.	984295.	14159.	811.	637661.	252199.	14453.	1621956.
2008	247937.	12917.	997212.	15150.	789.	638450.	263087.	13706.	1635662.
2009	266804.	12630.	1009849.	16210.	768.	639218.	283014.	13404.	1649067.
2010	502304.	21628.	1031476.	17345.	747.	639965.	519649.	22374.	1671441.

Table C.4 (Continued)

CASE 403-12. VOR-2ND/OMEGA, ALL REGIONS TRANSITION TO GPS(A). 1/17/78 PAGE 98

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51621.	129208.	106282.	79851.	216705.	174989.	131472.	345913.
1981	80467.	59058.	188266.	88161.	60215.	276920.	174628.	119273.	465186.
1982	73660.	45737.	234003.	53441.	33183.	310103.	127101.	78920.	544106.
1983	62113.	35061.	269065.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38647.	307712.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87561.	40857.	348569.	51662.	24101.	380096.	139243.	64958.	728665.
1986	95477.	40492.	389060.	55963.	23734.	403830.	151440.	64225.	792890.
1987	95356.	36765.	425825.	60612.	23368.	427198.	155970.	60133.	853023.
1988	138336.	48487.	474312.	65638.	23006.	450204.	203975.	71492.	924515.
1989	87323.	27824.	502136.	71070.	22645.	472849.	158393.	50469.	974984.
1990	83514.	16398.	520534.	61441.	17797.	490646.	124956.	36195.	1011180.
1991	82035.	16336.	536869.	65742.	17312.	507958.	127777.	33648.	1044827.
1992	75162.	17993.	554862.	70344.	16840.	524796.	145506.	34833.	1079660.
1993	70564.	15357.	570219.	75268.	16381.	541179.	145832.	31737.	1111398.
1994	70091.	13867.	584086.	80537.	15934.	557112.	150628.	29801.	1141199.
1995	86122.	15490.	599576.	86175.	15499.	572612.	172297.	30989.	1172188.
1996	97652.	15907.	615543.	92207.	15077.	587688.	189859.	31044.	1203231.
1997	102250.	15196.	630739.	98661.	14665.	602354.	200892.	29861.	1233093.
1998	117171.	15833.	646572.	105508.	14265.	616619.	222738.	30099.	1263191.
1999	252347.	31000.	677572.	112958.	13876.	630496.	365304.	44876.	1308068.
2000	47558.	5311.	682883.	8817.	985.	631480.	56376.	6296.	1314363.
2001	18107.	1838.	684722.	9435.	958.	632438.	27542.	2796.	1317160.
2002	61542.	5680.	690402.	10095.	932.	633370.	71637.	6612.	1323771.
2003	79529.	6673.	697075.	10802.	906.	634276.	90331.	7579.	1331351.
2004	80502.	6140.	703215.	11558.	882.	635158.	92059.	7022.	1338373.
2005	84454.	5856.	709071.	12367.	858.	636015.	96821.	6714.	1345087.
2006	107234.	6760.	715831.	13233.	834.	636849.	120467.	7594.	1352681.
2007	114020.	6821.	722652.	14159.	811.	637661.	133179.	7632.	1360313.
2008	123968.	6459.	729111.	15150.	789.	638450.	139118.	7248.	1367561.
2009	133402.	6318.	735429.	16210.	768.	639218.	149612.	7086.	1374647.
2010	251152.	10814.	746243.	17345.	747.	639965.	268497.	11561.	1386208.

Table C.4 (Continued)

CASE 403-13. VOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/17/78 PAGE 72

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52041.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51821.	129408.	106282.	79851.	216705.	174989.	131472.	345913.
1981	86467.	59058.	188466.	88161.	60215.	276920.	174628.	119273.	465186.
1982	73000.	45737.	234203.	53441.	33183.	310103.	127101.	78920.	544106.
1983	62113.	35061.	269265.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38047.	307312.	37954.	19177.	355695.	113266.	58123.	663707.
1985	87561.	40857.	348169.	56027.	26137.	382132.	143608.	66994.	730701.
1986	95477.	40892.	389060.	65302.	27694.	409826.	160779.	68186.	798887.
1987	95356.	36765.	425825.	75602.	29148.	438974.	170960.	65912.	864799.
1988	138336.	48487.	474312.	87023.	30501.	469475.	225361.	78988.	943787.
1989	87323.	27824.	502136.	99673.	31759.	501234.	186996.	59583.	1003370.
1990	388334.	112487.	614622.	92046.	26663.	527896.	480381.	139149.	1142519.
1991	365035.	96125.	710747.	98490.	25935.	553832.	463524.	122060.	1264579.
1992	347388.	85132.	805879.	105384.	25228.	579060.	502772.	120360.	1384939.
1993	350839.	77058.	883537.	112761.	24540.	603600.	469599.	102199.	1487137.
1994	332731.	65829.	949366.	120654.	23871.	627471.	453385.	89700.	1576837.
1995	366451.	65910.	1015276.	124100.	23220.	650690.	495551.	89129.	1665966.
1996	340609.	53868.	1069143.	138137.	22586.	673277.	528746.	86454.	1752420.
1997	406922.	60784.	1129927.	147806.	21970.	695247.	556728.	82754.	1835175.
1998	468682.	63333.	1193260.	158153.	21371.	716619.	626835.	84705.	1919879.
1999	1009388.	123999.	1317260.	169224.	20788.	737407.	1178611.	144788.	2064667.
2000	190233.	21245.	1338505.	69022.	7708.	745115.	259255.	28953.	2093620.
2001	72429.	7353.	1345858.	73854.	7498.	752613.	146283.	14851.	2108471.
2002	240167.	22720.	1378578.	79023.	7294.	759907.	325190.	30014.	2138485.
2003	318118.	26692.	1405270.	84555.	7095.	767002.	402673.	33786.	2172272.
2004	322007.	24562.	1429832.	90474.	6901.	773903.	412481.	31463.	2203735.
2005	337817.	23425.	1453257.	96807.	6713.	780616.	434624.	30138.	2233873.
2006	428938.	27040.	1480297.	103584.	6530.	787146.	532521.	33570.	2267443.
2007	476080.	27283.	1507581.	110834.	6352.	793497.	586915.	33635.	2301078.
2008	495874.	25834.	1533415.	118593.	6179.	799676.	614466.	32013.	2333091.
2009	533608.	25273.	1558688.	126894.	6010.	805686.	660502.	31283.	2364374.
2010	1004608.	43255.	1601943.	135777.	5846.	811532.	1140385.	49101.	2413475.

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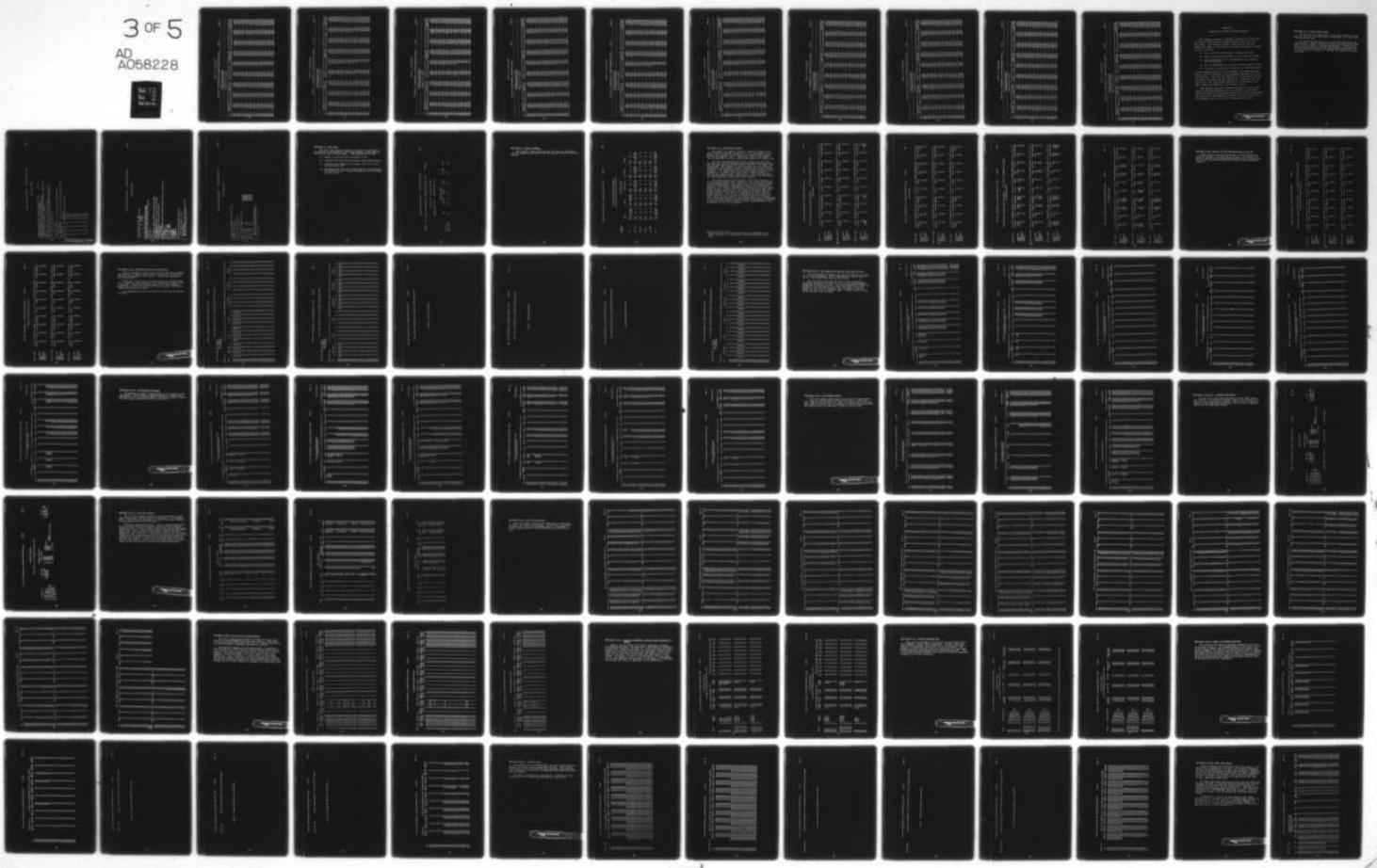


Table C.4 (Continued)

CASE 403-14. VOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/17/78 PAGE 72

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51621.	129208.	106282.	79851.	216705.	174989.	131472.	345913.
1981	80467.	54058.	183266.	88161.	60215.	276920.	174628.	119273.	465186.
1982	73660.	45737.	234003.	53441.	33183.	310103.	127101.	78920.	544106.
1983	82113.	35061.	269065.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38647.	307712.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87581.	40857.	348569.	60391.	28173.	384168.	147972.	69030.	732737.
1986	95477.	40492.	389060.	74641.	31655.	415823.	170119.	72147.	804883.
1987	95356.	36765.	425825.	90591.	34927.	450750.	185950.	71692.	876575.
1988	138338.	48487.	474312.	108408.	37996.	488746.	246746.	86483.	963058.
1989	87323.	27824.	502136.	128276.	40873.	529619.	215599.	68697.	1031755.
1990	388334.	112487.	614622.	122651.	35528.	565147.	510986.	148014.	1179769.
1991	365035.	96125.	710747.	131237.	34559.	599706.	496272.	130684.	1310453.
1992	397388.	95132.	805879.	140424.	33616.	633322.	537812.	128748.	1439201.
1993	356839.	77658.	883537.	150253.	32699.	666021.	507092.	110358.	1549559.
1994	332731.	65829.	949366.	160771.	31808.	697829.	493502.	97637.	1647195.
1995	366451.	65910.	1015276.	172025.	30940.	728769.	538476.	96850.	1744045.
1996	390609.	63868.	1079143.	184067.	30096.	758866.	574676.	93964.	1838009.
1997	408922.	60784.	1139927.	196951.	29276.	788141.	605873.	90059.	1928068.
1998	468682.	63333.	1203260.	210738.	28477.	816618.	679420.	91810.	2019879.
1999	1009388.	123999.	1327260.	225490.	27701.	844319.	1234877.	151700.	2171578.
2000	190233.	21245.	1348505.	129227.	14432.	858751.	319460.	35677.	2207255.
2001	72429.	7353.	1355858.	138273.	14038.	872789.	210702.	21392.	2228647.
2002	246167.	22720.	1378578.	147952.	13655.	886444.	394119.	36376.	2265022.
2003	318118.	26692.	1405270.	158308.	13283.	899727.	476426.	39975.	2304997.
2004	322007.	24562.	1429832.	169390.	12921.	912648.	491397.	37483.	2342480.
2005	337817.	23425.	1453257.	181247.	12568.	925216.	519064.	35994.	2378473.
2006	428938.	27040.	1480297.	193935.	12226.	937442.	622872.	39265.	2417739.
2007	476080.	27283.	1507581.	207510.	11892.	949334.	683590.	39176.	2456914.
2008	445874.	25834.	1533415.	222036.	11568.	960901.	717909.	37402.	2494316.
2009	533606.	25273.	1558686.	237578.	11252.	972154.	771186.	36525.	2530842.
2010	1004606.	43255.	1601943.	254209.	10945.	983099.	1258817.	54201.	2585042.

Table C.4 (Continued)

CASE 403-15. VOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/17/78 PAGE 71

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	41794.	37995.	37995.	65653.	59684.	59684.	107447.	97679.	97679.
1979	57085.	47176.	85173.	93375.	77170.	136854.	150461.	124348.	222027.
1980	74027.	55618.	140791.	106282.	79651.	216705.	180309.	135469.	357496.
1981	93299.	63724.	204515.	88161.	60215.	276920.	181460.	123940.	481435.
1982	77428.	48387.	252902.	53441.	33183.	310103.	131369.	81570.	563005.
1983	64134.	36202.	289104.	46797.	26416.	336519.	110931.	62618.	625623.
1984	78064.	40367.	329471.	37954.	19477.	355995.	116018.	59844.	685466.
1985	92803.	43296.	372767.	51662.	24101.	380096.	144470.	67396.	752863.
1986	101351.	42983.	415750.	55963.	23734.	403830.	157314.	66716.	819579.
1987	101040.	38955.	454705.	60612.	23368.	427198.	161652.	62324.	881903.
1988	149991.	52536.	507241.	65638.	23006.	450204.	215528.	75541.	957444.
1989	97872.	31185.	538426.	71070.	22645.	472849.	168942.	53830.	1011274.
1990	418240.	121149.	659575.	61441.	17797.	490646.	479682.	138947.	1150221.
1991	347051.	104556.	764131.	65742.	17312.	507958.	462794.	121868.	1272089.
1992	436467.	104487.	868618.	70344.	16840.	524798.	506811.	121326.	1393416.
1993	395581.	83914.	952531.	75268.	16381.	541179.	460849.	100294.	1493710.
1994	358808.	70986.	1023519.	80537.	15934.	557112.	439345.	86922.	1580632.
1995	376562.	71685.	1095204.	86175.	15499.	572612.	484737.	87184.	1667816.
1996	425784.	69620.	1164824.	92207.	15077.	587688.	517990.	84696.	1752513.
1997	446812.	66416.	1231240.	98061.	14665.	602354.	545473.	81081.	1833594.
1998	520012.	70270.	1301510.	105568.	14265.	616619.	625580.	84535.	1918129.
1999	1106690.	135952.	1437462.	112958.	13876.	630496.	1219647.	149829.	2067958.
2000	228053.	25536.	1462997.	8817.	985.	631480.	237470.	26520.	2094478.
2001	72240.	7334.	1470332.	9435.	958.	632438.	81674.	8292.	2102770.
2002	268046.	24740.	1495071.	10095.	932.	633370.	278141.	25671.	2128441.
2003	347393.	29148.	1524219.	10802.	906.	634276.	356195.	30055.	2158496.
2004	327609.	25286.	1549505.	11558.	882.	635158.	356166.	27168.	2185663.
2005	361773.	25087.	1574592.	12367.	858.	636015.	374140.	25944.	2211607.
2006	465349.	29355.	1604927.	13233.	834.	636849.	478581.	30169.	2241777.
2007	515519.	29544.	1634471.	14159.	811.	637661.	529678.	30355.	2272132.
2008	538617.	28061.	1662532.	15150.	789.	638450.	553766.	28851.	2300982.
2009	582707.	27001.	1689533.	16210.	768.	639218.	598977.	28369.	2329351.
2010	1106859.	47658.	1737191.	17345.	747.	639965.	1124204.	48405.	2377756.

Table C.4 (Continued)

CASE 403-16. VOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(4). 1/17/78 PAGE 94

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	53186.	30169.	30169.	65653.	59684.	59684.	98839.	89853.	89853.
1979	48298.	39916.	70085.	93375.	77170.	136854.	141673.	117085.	206939.
1980	63427.	47653.	117738.	106282.	79851.	216705.	169709.	127505.	334443.
1981	79525.	54317.	172055.	88161.	60215.	276920.	167686.	114532.	448975.
1982	69499.	43153.	215208.	53441.	33183.	310103.	122940.	76336.	525311.
1983	60667.	34245.	249453.	46797.	26416.	336519.	107464.	60660.	585972.
1984	71645.	36765.	286218.	37954.	19477.	355995.	109599.	56242.	642213.
1985	82352.	38418.	324636.	51002.	24101.	380096.	134014.	62519.	704732.
1986	89881.	37949.	362584.	55963.	23734.	403830.	145444.	61682.	766414.
1987	89641.	34560.	397145.	60612.	23368.	427198.	150253.	57929.	824343.
1988	127603.	44724.	441869.	65038.	23006.	450204.	193241.	67730.	892073.
1989	77666.	24747.	466616.	71070.	22645.	472849.	148737.	47392.	939465.
1990	356436.	103247.	569863.	61941.	17797.	490646.	417677.	121044.	1060509.
1991	333495.	87820.	657682.	65742.	17312.	507958.	399237.	105132.	1165640.
1992	359108.	85982.	743664.	70344.	16840.	524798.	429512.	102822.	1268462.
1993	325763.	70696.	814560.	75268.	16381.	541179.	401032.	87276.	1355738.
1994	305344.	60411.	874970.	80537.	15934.	557112.	385881.	76344.	1432083.
1995	334075.	60088.	935057.	86175.	15499.	572612.	420250.	75586.	1507668.
1996	355477.	58123.	993180.	92207.	15077.	587688.	447684.	73200.	1580868.
1997	372868.	55424.	1048604.	98661.	14665.	602354.	471530.	70090.	1650958.
1998	421602.	56979.	1105584.	105568.	14265.	616619.	527230.	71245.	1722203.
1999	911706.	111999.	1217593.	112958.	13876.	630496.	1024664.	125876.	1848079.
2000	151544.	16924.	1234507.	8817.	985.	631480.	160361.	17909.	1865988.
2001	72221.	7332.	1241840.	9435.	958.	632438.	81656.	8290.	1874278.
2002	223842.	20660.	1262499.	10095.	932.	633370.	233937.	21591.	1895869.
2003	288362.	24195.	1286695.	10802.	906.	634276.	299164.	25101.	1920971.
2004	297687.	22707.	1309401.	11558.	882.	635158.	309245.	23589.	1944559.
2005	314299.	21795.	1331196.	12367.	858.	636015.	326666.	22652.	1967211.
2006	343040.	24815.	1356011.	13233.	834.	636849.	406873.	25649.	1992860.
2007	434405.	24895.	1380906.	14159.	811.	637661.	448563.	25707.	2018567.
2008	451431.	23519.	1404425.	15150.	789.	638450.	466580.	24308.	2042875.
2009	464142.	22930.	1427355.	16210.	768.	639218.	500352.	23698.	2066573.
2010	902356.	38853.	1466208.	17345.	747.	639965.	919701.	39599.	2106172.

Table C.4 (Continued)

CASE 403-17. VOR-2ND/OMEGA, TRANSITION TO GPS(B). 1/26/78 PAGE 108

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51621.	129208.	106282.	79851.	216705.	174989.	131472.	345913.
1981	86467.	59058.	188266.	88161.	60215.	276920.	174628.	119273.	465186.
1982	73660.	45737.	234003.	53441.	33183.	310103.	127101.	78920.	544106.
1983	62113.	35061.	269065.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38647.	307712.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87581.	40857.	348569.	84579.	39457.	395452.	172160.	80314.	744021.
1986	95477.	40492.	389060.	98593.	41813.	437265.	194070.	82305.	826325.
1987	95358.	36765.	425825.	114154.	44011.	481276.	209512.	80776.	907101.
1988	138338.	48487.	474312.	131410.	46058.	527335.	269748.	94545.	1001646.
1989	87323.	27824.	502136.	150523.	47961.	575296.	237846.	75785.	1077431.
1990	228942.	66331.	568466.	110000.	31863.	607159.	338992.	98194.	1175625.
1991	223447.	58840.	627307.	117700.	30994.	638153.	341146.	89835.	1265460.
1992	247561.	59264.	686571.	125939.	30149.	668302.	373499.	89413.	1354873.
1993	224166.	48785.	735356.	134754.	29326.	697628.	358920.	78111.	1432984.
1994	211388.	41822.	777178.	144187.	28527.	726155.	355575.	70349.	1503333.
1995	237901.	42789.	819967.	154280.	27749.	753903.	392181.	70537.	1573870.
1996	255240.	41734.	861700.	165080.	26992.	780895.	420320.	68726.	1642596.
1997	206939.	39679.	901379.	176636.	26256.	807151.	443575.	65935.	1708530.
1998	308239.	41653.	943032.	189000.	25540.	832691.	497239.	67192.	1775723.
1999	658799.	80931.	1023963.	202230.	24843.	857534.	861029.	105774.	1881497.
2000	122681.	13701.	1037663.	104339.	11652.	869186.	227020.	25353.	1906850.
2001	45489.	4616.	1042282.	111643.	11335.	880521.	157132.	15953.	1922803.
2002	150241.	14605.	1056887.	119458.	11025.	891546.	277698.	25630.	1948433.
2003	205038.	17204.	1074091.	127820.	10725.	902271.	332858.	27929.	1976362.
2004	208180.	15879.	1089970.	136767.	10432.	912703.	344947.	26312.	2002673.
2005	219791.	15241.	1105211.	146341.	10148.	922851.	366132.	25389.	2028062.
2006	279136.	17597.	1122808.	156585.	9871.	932722.	435721.	27468.	2055530.
2007	309430.	17733.	1140541.	167546.	9602.	942324.	476976.	27335.	2082865.
2008	322080.	16780.	1157321.	179274.	9340.	951664.	501354.	26120.	2108985.
2009	347304.	16449.	1173770.	191823.	9085.	960749.	539127.	25534.	2134519.
2010	651049.	28032.	1201802.	205251.	8837.	969587.	856299.	36869.	2171388.

Table C.4 (Continued)

CASE 403-18. VOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/17/78 PAGE 72

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	64112.	58284.	58284.	101603.	92366.	92366.
1979	52641.	43505.	77587.	86460.	71455.	129738.	139101.	114959.	207325.
1980	68708.	51621.	129208.	98883.	74292.	204030.	167590.	125913.	333238.
1981	80467.	59058.	188266.	86274.	58926.	262956.	172740.	117984.	451222.
1982	73660.	45737.	234003.	51421.	31929.	294885.	125082.	77666.	528888.
1983	62113.	35061.	269065.	44636.	25196.	320080.	106749.	60257.	589145.
1984	75512.	38647.	307712.	35042.	18290.	338370.	110954.	56937.	646082.
1985	87581.	40857.	348569.	49188.	22947.	361317.	136769.	63804.	709886.
1986	95477.	40492.	389060.	53315.	22611.	383928.	148793.	63103.	772988.
1987	95358.	36765.	425825.	57779.	22276.	406204.	153138.	59041.	832030.
1988	136338.	48487.	474312.	62607.	21943.	428148.	200945.	70430.	902459.
1989	87323.	27824.	502136.	67827.	21612.	449759.	155150.	49436.	951895.
1990	388334.	112487.	614622.	57971.	16792.	466552.	446306.	129279.	1081174.
1991	365035.	96125.	710747.	62029.	16334.	482886.	427064.	112459.	1193633.
1992	397388.	95132.	805879.	66371.	15889.	498775.	463759.	111020.	1304653.
1993	356839.	77658.	883537.	71017.	15455.	514230.	427856.	93114.	1397767.
1994	332731.	65629.	949366.	75988.	15034.	529264.	408719.	80863.	1478630.
1995	366451.	65910.	1015276.	81308.	14624.	543888.	447759.	80533.	1559163.
1996	390009.	63808.	1079143.	86999.	14225.	558113.	477008.	78093.	1637256.
1997	408922.	60784.	1139927.	93089.	13837.	571950.	502011.	74621.	1711877.
1998	468682.	63333.	1203260.	99605.	13460.	585410.	568288.	76793.	1788670.
1999	1004388.	123999.	1327260.	106578.	13093.	598502.	1115965.	137092.	1925762.
2000	190233.	21245.	1348505.	8817.	985.	599487.	199050.	22230.	1947991.
2001	72029.	7353.	1355858.	9435.	958.	600445.	81864.	8311.	1956303.
2002	246167.	22720.	1378578.	10095.	932.	601377.	256262.	23652.	1979955.
2003	318118.	26692.	1405270.	10802.	906.	602283.	328919.	27598.	2007553.
2004	322007.	24552.	1429822.	11558.	882.	603164.	333565.	25444.	2032996.
2005	337617.	23425.	1453257.	12367.	858.	604022.	350184.	24283.	2057279.
2006	428936.	27040.	1480297.	13233.	834.	604856.	442170.	27874.	2085153.
2007	476060.	27283.	1507581.	14159.	811.	605668.	490239.	28095.	2113248.
2008	495874.	25834.	1533415.	15150.	789.	606457.	511024.	26624.	2139872.
2009	533608.	25273.	1558688.	16210.	768.	607225.	549818.	26041.	2165913.
2010	1004608.	43255.	1601943.	17345.	747.	607971.	1021953.	44002.	2209915.

Table C.4 (Continued)

CASE 407-10. VOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/17/78 PAGE 94

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37421.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51621.	129208.	106282.	79851.	216705.	174989.	131472.	345913.
1981	80467.	54958.	188266.	88161.	60215.	276920.	174628.	119273.	465186.
1982	73660.	45737.	234003.	53441.	33183.	310103.	127101.	78920.	544106.
1983	62113.	35091.	269065.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38647.	307712.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87561.	40857.	348569.	51662.	24101.	380096.	139243.	64958.	728665.
1986	95477.	40492.	389060.	55963.	23734.	403830.	151440.	64225.	792890.
1987	95358.	36765.	425825.	60612.	23368.	427198.	155970.	60133.	853023.
1988	138338.	48687.	474512.	65038.	23006.	450204.	203975.	71492.	924515.
1989	87523.	27824.	502336.	71070.	22645.	472849.	158393.	50469.	974984.
1990	194070.	56215.	558551.	61441.	17797.	490646.	255511.	74012.	1048997.
1991	178255.	46940.	605291.	65742.	17312.	507958.	243997.	64252.	1113249.
1992	190342.	45566.	650857.	70344.	16840.	524798.	260686.	62406.	1175655.
1993	171110.	37240.	688097.	75268.	16381.	541179.	246384.	53620.	1229276.
1994	160569.	31768.	719865.	80537.	15934.	557112.	241106.	47702.	1276977.
1995	179574.	32298.	752163.	86175.	15499.	572612.	265748.	47797.	1324775.
1996	193355.	31615.	783778.	92207.	15077.	587688.	285562.	46692.	1371466.
1997	202284.	30068.	813846.	98661.	14665.	602354.	300945.	44734.	1416200.
1998	239135.	32314.	846160.	105566.	14265.	616619.	344703.	46580.	1462780.
1999	511294.	62810.	908971.	112958.	13676.	630496.	624252.	76687.	1539466.
2000	117431.	13115.	922085.	114038.	12736.	643231.	231469.	25850.	1565316.
2001	23609.	2397.	924482.	122021.	12388.	655619.	145630.	14785.	1580102.
2002	97547.	9003.	933485.	130562.	12050.	667670.	228109.	21054.	1601155.
2003	134238.	11205.	944709.	139702.	11722.	679391.	273940.	22985.	1624140.
2004	136573.	11180.	955925.	149481.	11402.	690793.	296055.	22582.	1646722.
2005	162009.	11234.	967163.	159944.	11091.	701885.	321953.	22325.	1669048.
2006	211827.	13353.	980517.	171141.	10789.	712673.	382968.	24142.	1693190.
2007	238335.	13654.	994175.	183120.	10494.	723168.	421456.	24153.	1717343.
2008	245765.	12960.	1007136.	195939.	10208.	733376.	441704.	23168.	1740511.
2009	207360.	10664.	1017800.	209655.	9930.	743305.	417040.	22594.	1763105.
2010	452607.	19921.	1039721.	224330.	9659.	752964.	686997.	29580.	1792685.

Table C.4 (Continued)

CASE 407-11. VOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/17/78 PAGE 94

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51621.	129208.	106282.	79851.	216705.	174989.	131472.	345913.
1981	86467.	59058.	188266.	88161.	60215.	276920.	174628.	119273.	465186.
1982	73660.	45737.	234003.	53441.	33183.	310103.	127101.	78920.	544106.
1983	62113.	35061.	269065.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38047.	307712.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87581.	40857.	348569.	51062.	24101.	380096.	139243.	64958.	728665.
1986	95477.	40492.	389060.	55963.	23734.	403830.	151440.	64225.	792890.
1987	95358.	36765.	425825.	60612.	23368.	427198.	155970.	60133.	853023.
1988	138338.	48647.	474512.	65638.	23006.	450204.	203975.	71492.	924515.
1989	87323.	27824.	502336.	71070.	22645.	472849.	158393.	50469.	974984.
1990	128243.	37147.	539483.	81441.	17797.	490646.	189684.	54945.	1029929.
1991	121749.	32060.	571543.	85742.	17312.	507958.	187492.	49372.	1079302.
1992	134093.	32101.	603644.	70344.	16840.	524798.	204437.	48941.	1128242.
1993	121783.	26504.	629948.	75268.	16381.	541179.	197052.	42884.	1171126.
1994	116094.	22964.	652916.	80537.	15934.	557112.	196632.	38903.	1210029.
1995	133695.	24046.	676963.	86175.	15499.	572612.	219869.	39545.	1249574.
1996	146409.	23939.	700902.	92207.	15077.	587688.	238616.	39016.	1288590.
1997	153169.	22771.	723672.	98001.	14665.	602354.	251851.	37436.	1326026.
1998	179198.	24215.	747887.	105568.	14265.	616619.	284766.	38481.	1364506.
1999	363911.	44705.	792592.	112958.	13876.	630496.	476869.	58581.	1423088.
2000	97355.	10872.	803465.	114038.	12736.	643231.	211393.	23608.	1446696.
2001	27990.	2802.	806306.	122021.	12388.	655619.	150011.	15230.	1461926.
2002	80362.	7417.	813724.	130562.	12050.	667670.	210924.	19467.	1481393.
2003	107865.	9051.	822774.	139702.	11722.	679391.	247567.	20772.	1502165.
2004	114429.	8728.	831502.	149481.	11402.	690793.	263910.	20130.	1522296.
2005	124089.	8605.	840107.	159944.	11091.	701885.	284034.	19696.	1541992.
2006	159953.	10083.	850191.	171141.	10789.	712673.	331094.	20872.	1562864.
2007	179607.	10293.	860484.	183120.	10494.	723168.	362728.	20787.	1583651.
2008	187540.	9771.	870254.	195939.	10208.	733376.	383479.	19979.	1603630.
2009	201659.	9551.	879805.	209655.	9930.	743305.	411314.	19481.	1623111.
2010	335722.	14455.	894260.	224330.	9659.	752964.	560052.	24114.	1647225.

Table C.4 (Continued)

CASE 407-12. VOR-2ND/OMEGA, ALL REGIONS TRANSITION TO GPS(A). 1/17/78 PAGE 94

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51621.	129208.	106282.	79851.	216705.	174989.	131472.	345913.
1981	80467.	59058.	188266.	88161.	60215.	276920.	174628.	119273.	465186.
1982	73660.	45737.	234003.	53441.	33183.	310103.	127101.	78920.	544106.
1983	62113.	35061.	269065.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38647.	307712.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87581.	40857.	348569.	51662.	24101.	380096.	139243.	64958.	728665.
1986	95477.	40492.	389060.	55963.	23734.	403830.	151440.	64225.	792890.
1987	95356.	36765.	425825.	60612.	23368.	427198.	155970.	60133.	853023.
1988	136336.	48487.	474312.	65038.	23006.	450204.	203975.	71492.	924515.
1989	87323.	27824.	502136.	71070.	22645.	472849.	158393.	50469.	974984.
1990	82416.	18080.	520215.	61441.	17797.	490646.	123857.	35877.	1010861.
1991	85244.	17181.	537396.	65742.	17312.	507958.	130986.	34493.	1045354.
1992	77844.	18635.	556031.	70344.	16840.	524798.	148186.	35475.	1080829.
1993	72451.	15767.	571798.	75208.	16381.	541179.	147719.	32148.	1112977.
1994	71620.	14170.	585968.	80537.	15934.	557112.	152157.	30103.	1143080.
1995	87316.	15794.	601762.	86175.	15499.	572612.	173990.	31294.	1174374.
1996	99463.	16263.	618025.	92207.	15077.	587688.	191670.	31340.	1205714.
1997	104095.	15473.	633498.	98661.	14665.	602354.	202756.	30138.	1235852.
1998	119261.	16119.	649614.	105508.	14265.	616619.	224828.	30381.	1266233.
1999	216569.	26600.	676214.	112958.	13876.	630496.	329486.	40476.	1306709.
2000	77274.	8830.	684844.	114038.	12736.	643231.	191317.	21366.	1328075.
2001	32371.	3286.	688131.	122021.	12388.	655619.	154392.	15675.	1343750.
2002	83176.	5831.	693962.	130562.	12050.	667670.	193738.	17881.	1361631.
2003	81493.	6836.	700799.	139702.	11722.	679391.	221195.	18559.	1380191.
2004	92256.	6277.	707076.	149481.	11402.	690793.	231766.	17679.	1397869.
2005	86170.	5975.	713051.	159944.	11091.	701885.	246115.	17066.	1414936.
2006	106074.	6813.	719864.	171141.	10789.	712673.	279219.	17602.	1432538.
2007	120880.	6927.	726792.	183120.	10494.	723168.	304000.	17422.	1449959.
2008	120315.	6581.	733373.	195939.	10208.	733376.	322254.	16789.	1466748.
2009	135933.	6438.	739811.	209655.	9930.	743305.	345587.	16368.	1483116.
2010	208776.	8989.	748800.	224330.	9659.	752964.	433107.	18648.	1501764.

Table C.4 (Continued)

CASE 407-13. VOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/17/78 PAGE 72

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65053.	59684.	59684.	103143.	93767.	93767.
1979	52041.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51821.	129208.	106282.	79851.	216705.	174989.	131472.	345913.
1981	86467.	59056.	188266.	88161.	60215.	276920.	174628.	119273.	465186.
1982	73660.	45737.	234003.	53441.	33183.	310103.	127101.	78920.	544106.
1983	82113.	35061.	269065.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38647.	307712.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87581.	40857.	348569.	56027.	26137.	382132.	143608.	66994.	730701.
1986	95477.	40492.	389060.	65302.	27694.	409826.	160779.	68186.	798887.
1987	95356.	36765.	425825.	75602.	29148.	438974.	170960.	65912.	864799.
1988	138338.	48487.	474312.	87023.	30501.	469475.	225361.	78988.	943787.
1989	87323.	27824.	502136.	99675.	31759.	501234.	186996.	59583.	1003370.
1990	259897.	75265.	577416.	92046.	26663.	527896.	351943.	101945.	1105315.
1991	234761.	61820.	639238.	98490.	25935.	553832.	333251.	87755.	1193070.
1992	245591.	59032.	698270.	105384.	25228.	579060.	351975.	84260.	1277330.
1993	220448.	47976.	746246.	112761.	24540.	603600.	333209.	72516.	1349846.
1994	205044.	40567.	786813.	120654.	23871.	627471.	325698.	64438.	1414284.
1995	225453.	40550.	827363.	129100.	23220.	650690.	354553.	63769.	1478053.
1996	240300.	39291.	866654.	138137.	22586.	673277.	378437.	61878.	1539931.
1997	251378.	37300.	904020.	147800.	21970.	695247.	399185.	59336.	1599267.
1998	299072.	40414.	944433.	158153.	21371.	716619.	457225.	61785.	1661052.
1999	658677.	80916.	1025349.	169224.	20768.	737407.	827900.	101704.	1762756.
2000	137508.	15357.	1040706.	174243.	19459.	756866.	311750.	34816.	1797572.
2001	19228.	1952.	1042658.	186440.	18928.	775795.	205668.	20881.	1818453.
2002	114733.	10549.	1053207.	199491.	18412.	794207.	314223.	29002.	1847454.
2003	100611.	13470.	1066723.	213455.	17910.	812117.	374066.	31386.	1878840.
2004	178716.	13632.	1080355.	228397.	17422.	829539.	407113.	31054.	1909894.
2005	144928.	13864.	1094219.	244385.	16946.	846485.	444313.	30810.	1940704.
2006	203702.	16624.	1110843.	261492.	16484.	862969.	525193.	33108.	1973812.
2007	277063.	17024.	1127867.	279796.	16035.	879004.	576859.	33059.	2006871.
2008	309990.	16150.	1144017.	299382.	15597.	894601.	609372.	31747.	2038618.
2009	333112.	15777.	1159794.	320336.	15172.	909773.	653451.	30949.	2069567.
2010	389612.	25387.	1185181.	342762.	14758.	924532.	932374.	40145.	2109712.

Table C.4 (Continued)

CASE 407-14. VOR-2ND/OMEGA. ALL REGIONS TRANSITION TO GPS(A). 1/17/78 PAGE 72

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65053.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	58708.	51021.	129208.	106282.	79851.	216705.	174989.	131472.	345913.
1981	80467.	59058.	188266.	88161.	60215.	276920.	174628.	119273.	465186.
1982	73000.	45737.	234003.	53441.	33183.	310103.	127101.	78920.	544106.
1983	62113.	35061.	269065.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38647.	307712.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87581.	40857.	348569.	60391.	28173.	384168.	147972.	69030.	732737.
1986	95477.	40492.	389060.	74641.	31655.	415823.	170119.	72147.	804883.
1987	95358.	36765.	425825.	90591.	34927.	450750.	185950.	71692.	876575.
1988	132338.	45487.	470312.	108408.	37996.	488746.	240746.	83483.	963058.
1989	87323.	27524.	502130.	128276.	40873.	529619.	215599.	68397.	1031755.
1990	259697.	75283.	577418.	122651.	35528.	565147.	382548.	110811.	1142565.
1991	234761.	61820.	639238.	131237.	34559.	599706.	365998.	96379.	1238944.
1992	246591.	59032.	698270.	140424.	33616.	633322.	387015.	92648.	1331592.
1993	220448.	47970.	746240.	150253.	32699.	666021.	370702.	80676.	1412268.
1994	205044.	40567.	786813.	160771.	31808.	697829.	365815.	72375.	1484642.
1995	225453.	40550.	827363.	172025.	30940.	728769.	397478.	71490.	1556132.
1996	240300.	39241.	866604.	184067.	30096.	758866.	424367.	69387.	1625520.
1997	251378.	37360.	904020.	196951.	29276.	788141.	448330.	66641.	1692161.
1998	299072.	40414.	944433.	210736.	28477.	816618.	509810.	68891.	1761052.
1999	658677.	80916.	1025349.	225490.	27701.	844319.	884166.	108616.	1869668.
2000	137508.	15357.	1040706.	234448.	26185.	870501.	371955.	41539.	1911207.
2001	19228.	1952.	1042658.	250859.	25469.	895970.	270087.	27421.	1938628.
2002	114733.	10589.	1053247.	268419.	24774.	920744.	383152.	35363.	1973991.
2003	100611.	13476.	1066723.	287208.	24098.	944842.	447819.	37574.	2011566.
2004	178716.	13032.	1079755.	307313.	23441.	968284.	486029.	37073.	2048639.
2005	199928.	13804.	1093559.	328825.	22802.	991085.	528753.	36666.	2085305.
2006	203702.	16024.	1110843.	351843.	22180.	1013265.	615544.	38804.	2124108.
2007	247063.	17024.	1127867.	376472.	21575.	1034840.	673535.	38599.	2162707.
2008	309990.	16150.	1144017.	402025.	20987.	1055827.	712814.	37137.	2199844.
2009	333112.	15777.	1159794.	431022.	20414.	1076241.	764135.	36191.	2236035.
2010	389612.	25387.	1185181.	461194.	19858.	1096099.	1050806.	45244.	2281280.

APPENDIX D

COMPLETE LIFE CYCLE COST MODEL PRINTOUT

This appendix presents a complete listing of the output made available by the Navigation System Evaluator (NSE) life cycle cost model. This example listing is that obtained from the nominal GPS scenario, specifically run number 403, which is characterized as follows:

(1) VOR is initially operational in CONUS and Alaska.

(2) Omega is presumed operational in off-shore and oceanic.

(3) Second generation VOR is implemented as per baseline Run 100 schedules.

(4) GPS is implemented in all regions between 1985 and 1989.

(5) All users transition to GPS during the 1990-1999 period.

In this example execution of the NSE model, all available model output, with the exception of the voluminous detailed user output, was requested. Virtually any combination of these outputs may be selected by the model user for a given run. Typically, the user would select only that output required for verification of the input values and tabulation of the summary results.

This appendix provides a written description of each output format on the page preceding the first display of that format. Please note that the page numbers referenced in these descriptions are the printout page numbers provided by the NSE, not those of this appendix, and all costs are in thousands of dollars.

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NSE Pages 1-3: Input Card Listing

The NSE lists all input cards, in the exact format in which they are punched. This facilitates validation of the input after the run has been made.

All cards with the letter 'C' in the first column are user comment cards. Comment cards may be placed anywhere in the input deck; they are ignored by the processing logic. Comment cards can therefore be used to describe the scenario, to describe why and how changes were made to the nominal (pre-stored) data, and to provide written reminders of the specific input card contents and format.

INPUT CARD LISTING

```
 CASE 403. VOR/2ND/OMEGA. ALL REGIONS TRANSITION TO GPS.        5/18/78
C  GPS OPERATIONAL IN 1990. 10 YEAR TRANSITION.
C  USING 10% DISCOUNT, 7% INFLATION, 20000 CUTOFF.
C  VOR-2ND/OMEGA OPERATIONAL IN PLACE OF SELF-CONTAINED.
C  NOTE: OMEGA DATA OVERWRITTEN INTO SELF-CONT,.AS IF OMEGA OPERATIONAL NOW.
C BASE YEAR, NUMBER OF YEARS TO RUN MODEL
 1977   35
C DISCOUNT RATE,INFLATION RATE,TECHNOLOGY RATES.
 10.    7.    0.    0.    0.    0.    0.    0.  -5.1 -5.1 -5.1 -5.1 -5.1 -5.1
C NO. OF GROUPS,AV CLASSES,USER CLASSES,REG COMBS,AC TYPES,SYSTEMS.
   95   10    4     8     4     6
C     CHANGES TO NAV. SYSTEM NAMES

C INPUT CARD LISTING.

C FAA PROCESSING, OUTPUT OF FAA INPUT DATA,DATA CONSISTENCY CHECK.
    1    1    1
C     SCHANG CARDS
C SET UNASSIGNED CONUS IMPL COSTS TO 86.5 TO ACCOUNT FOR INCREASED INITIAL
C O+M COSTS.
    1    1    4    2    28.500.0000
C SCHANG CARDS TO MOVE OMEGA COSTS INTO SELF CONTAINED.
    1    2    1    1    2  600.
    1    2    2    1    2 2000.
    1    2    3    1    2  500.
    1    2    4    1    2 1000.
    1    2    7    1    2  500.
    1    2    8    1    2  100.
    1    2    9    1    2  500.
    1    2    3    4    2  400.
    1    2    4    4    2 3500.
    1    2    7    4    2   90.
    1    2    8    4    2   50.
    1    2    3    5    2  100.
    1    2    4    5    2  500.
    1    2    7    5    2   40.
    1    2    8    5    2   50.
    1    2    3    6    2  100.
    1    2    4    6    2  500.
    1    2    7    6    2   60.
```


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INPUT CARD LISTING

```
     1    2    8    6    2   50.
C  SCHANG COSTS FOR ALASKA, RUNS 200-400.
     1    1    4    3    217000.
     1    1    5    3    2 1360.
     1    1    6    3    2   36.

C NAV SYSTEM IMPLEMENTATION/OPERATING INPUTS.
C DISTRIBUTION OF FIXED INPLEMENTATION COSTS
C SPEND FIXED vOR IMPL COSTS UNIFORMLY IN YEARS 1-6.
 1 1 6 0
 2 1 3 1 05050
 6 812 0

C DISTRIBUTION OF REGION INCREMENTAL IMPLEMENTATION COSTS
 1 1 1 6 122 3
C SPEND CONUS HARDWARE COSTS TO MATCH FAA F+E ESTIMATES.
 1 1 114293423 0 0
C SPEND CONUS R+D AND TRAINING COSTS UNIFORMLY.
 1 1 2171717171616
 1 1 3171717171616
C SPEND CONUS UNASSIGNED COSTS AS NEEDED TO AUGMENT O+M DATA, TO MATCH FAA O+M
C ESTIMATES.
 1 1 82222221812 4
 1 2 1 6 122 0
 2 3 1 3 122 1 05050
 2 4 1 3 122 1 05050
 2 5 1 3 122 1 05050
 6 1 8121333 0
 6 2 8121333 0
 6 3 8121333 0
 6 4 8121333 0
 6 5 8121333 0

C DEFINITION OF NON-FAA COSTS PAID BY FAA

C    FAAOUT CARDS- OPTIONS 1,2,3,4,5
     1    1    1    1    1
C    USER RUN CARDS-
C    USER PROC,PRICE SENSITIVITY,CHECK,USER DATA OUT,
C    PROJ DATA, AV DATA,PRICES, BUY DATA
```

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INPUT CARD LISTING

```
    1    1    1    1    1    1    1    1
C AVIONICS PRICE REDUCTION -SALES CUTOFF VALUE
   20000.
C USER DATA CHANGE CARDS.

C USER PROJECTION CHANGE CARDS.

C AVIONICS DATA CHANGE CARDS.

C USER PURCHASE STRATEGY DEFINITION.
 2 0 0 1 0 112                                        13331322
 2 0 0 2 0 112                                        13331322
 2 0 0 3 0 112      112                               13331322
 2 0 0 4 0 112      112                               13331322
 2 0 0 5 0 112      112                               13331322
 2 0 0 6 0 112      112                               13331322
 2 0 0 7 0 112                                        13331322
 2 0 0 8 0 112      112                               13331322

C     OUTPUT- FOUR ENTRIES FOR SEQUENCING,
C     DETAILED,DET SUMMARY,SHORT,SHORT SUMMARY
    1    1    1    1    0    0    1    1
C     END OF INPUT
```

NSE Page 4: Title Page

The title page contains several of the basic run parameters, in addition to the scenario title (which appears on this page as well as all other printout pages). These parameters include:

(1) number of years for which the model is run;

(2) discount rate (used for all present value computations);

(3) inflation rate (applied as an annual rate to all user and FAA costs); and

(4) technology rate; for each system, and for the users and FAA separately (this is applied annually to all hardware/ avionics costs).

SCENARIO TITLE: CASE 403. VOR/2ND/OMEGA. ALL REGIONS TRANSITION TO GPS. 5/18/78

MODEL RUN FOR 33 YEARS. 1978-2010

DISCOUNT RATE= 10.00 INFLATION RATE= 7.00

TECHNOLOGY RATES

	VOR	SELF CON	LORAN-C	OMEGA	DF OMEGA	GPS
FAA HARDWARE	.0	.0	.0	.0	.0	.0
USER AVIONICS	-5.1	-5.1	-5.1	-5.1	-5.1	-5.1

NSE Page 5: Scenario Summary

The scenario summary page presents the years of implementation and operation for each of the six systems in each of the five regions.

NAVIGATION SYSTEM SCENARIO SUMMARY

(YEARS OF IMPLEMENTATION AND OPERATION)

NAVIGATION SYSTEM	OPERATING REGION									
	CONUS		ALASKA		CONUS OFF-SH		AKA OFF-SH		OCEANIC	
VOR	IMPL:	1978-1983	IMPL:	1978-1983	IMPL:	0- 0	IMPL:	0- 0	IMPL:	0- 0
	OP :	1978-1999	OP :	1978-1999	OP :	0- 0	OP :	0- 0	OP :	0- 0
SELF CON	IMPL:	0- 0	IMPL:	0- 0	IMPL:	1978-1980	IMPL:	1978-1980	IMPL:	1978-1980
	OP :	0- 0	OP :	0- 0	OP :	1978-1999	OP :	1978-1999	OP :	1978-1999
LORAN-C	IMPL:	0- 0	IMPL:	0- 0	IMPL:	0- 0	IMPL:	0- 0	IMPL:	0- 0
	OP :	0- 0	OP :	0- 0	OP :	0- 0	OP :	0- 0	OP :	0- 0
OMEGA	IMPL:	0- 0	IMPL:	0- 0	IMPL:	0- 0	IMPL:	0- 0	IMPL:	0- 0
	OP :	0- 0	OP :	0- 0	OP :	0- 0	OP :	0- 0	OP :	0- 0
DF OMEGA	IMPL:	0- 0	IMPL:	0- 0	IMPL:	0- 0	IMPL:	0- 0	IMPL:	0- 0
	OP :	0- 0	OP :	0- 0	OP :	0- 0	OP :	0- 0	OP :	0- 0
GPS	IMPL:	1985-1989	IMPL:	1985-1989	IMPL:	1985-1989	IMPL:	1985-1989	IMPL:	1985-1989
	OP :	1990-2010	OP :	1990-2010	OP :	1990-2010	OP :	1990-2010	OP :	1990-2010

NSE Pages 6-9: System Cost Summary

The system cost summary contains a complete listing of all radio navigation (source) system costs (i.e., government costs). Pages 6 and 7 present the non-FAA costs;* pages 8 and 9 present the FAA (incremental) costs. These costs reflect the nominal (pre-stored) data, altered as appropriate based on the input deck.

The costs are subdivided by system, region and cost type. The cost types include implementation and annual operating costs, with further subdivisions for training, R&D, etc., as shown. The "unassigned" cost category is used to account for cost estimates obtained for which data to support categorization by type is not available. The implementation costs are "total" values yet to be expended, i.e., future costs (the rate of expense by year is derived by a separate input, shown later). The recurring costs are constant annual values (affected by inflation and technology). All costs shown are in base year (1977) dollars.

The region subdivisions include a "fixed cost" category, as well as region-peculiar cost categories. The fixed cost category is designed to reflect those costs which must be incurred if the system is implemented, independent of where it is implemented. R&D costs, for example, are generally "fixed costs," as are Omega hardware costs. Loran-C hardware costs, on the other hand, are mostly region-peculiar costs. The intent of dividing the costs in this manner is to permit full accounting of costs, without double counting. If a system is implemented in any region, the total costs are derived as the sum of the fixed costs and the costs associated with each of the regions wherein it is implemented. If the costs are properly allocated within the categories, accurate accounting should result whether a system is implemented in only one region, or in all five regions.

*Please note that the non-FAA costs were not included in this study's results, i.e., FAA share of non-FAA costs was set at zero.

RADIO NAVIGATION (SOURCE) SYSTEM COST SUMMARY (ALL COSTS IN THOUSANDS 1977 DOLLARS)

NON-FAA COSTS

SYSTEM: VOR	IMPLEMENTATION COSTS				ANNUAL RECURRING COSTS					
	HARDWARE	R AND D	TRAINING	UNASSIGNED	O AND M	SPARES	STAFF	CHARTING	OTHER	UNASSIGNED
FIXED COSTS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALASKA	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
AKA OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
OCEANIC	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

SYSTEM: SELF CON	IMPLEMENTATION COSTS				ANNUAL RECURRING COSTS					
	HARDWARE	R AND D	TRAINING	UNASSIGNED	O AND M	SPARES	STAFF	CHARTING	OTHER	UNASSIGNED
FIXED COSTS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALASKA	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
AKA OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
OCEANIC	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

SYSTEM: LORAN-C	IMPLEMENTATION COSTS				ANNUAL RECURRING COSTS					
	HARDWARE	R AND D	TRAINING	UNASSIGNED	O AND M	SPARES	STAFF	CHARTING	OTHER	UNASSIGNED
FIXED COSTS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALASKA	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS OFF-SH	60000.	0.	0.	6000.	0.	0.	0.	0.	0.	3100.
AKA OFF-SH	24000.	0.	0.	2400.	0.	0.	0.	0.	0.	2380.
OCEANIC	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

NON-FAA COSTS

SYSTEM: OMEGA	IMPLEMENTATION COSTS				ANNUAL RECURRING COSTS					
	HARDWARE	R AND D	TRAINING	UNASSIGNED	O AND M	SPARES	STAFF	CHARTING	OTHER	UNASSIGNED
FIXED COSTS	17500.	600.	500.	500.	0.	0.	750.	150.	2100.	1540.
CONUS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALASKA	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
AKA OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
OCEANIC	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

SYSTEM: OF OMEGA	IMPLEMENTATION COSTS				ANNUAL RECURRING COSTS					
	HARDWARE	R AND D	TRAINING	UNASSIGNED	O AND M	SPARES	STAFF	CHARTING	OTHER	UNASSIGNED
FIXED COSTS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALASKA	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
AKA OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
OCEANIC	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

SYSTEM: GPS	IMPLEMENTATION COSTS				ANNUAL RECURRING COSTS					
	HARDWARE	R AND D	TRAINING	UNASSIGNED	O AND M	SPARES	STAFF	CHARTING	OTHER	UNASSIGNED
FIXED COSTS	503000.	0.	0.	260000.	0.	0.	0.	0.	0.	127000.
CONUS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALASKA	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
AKA OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
OCEANIC	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

RADIO NAVIGATION (SOURCE) SYSTEM COST SUMMARY (ALL COSTS IN THOUSANDS 1977 DOLLARS)

FAA INCREMENTAL COSTS

SYSTEM: VOR	IMPLEMENTATION COSTS				ANNUAL RECURRING COSTS					
	HARDWARE	R AND D	TRAINING	UNASSIGNED	O AND M	SPARES	STAFF	CHARTING	OTHER	UNASSIGNED
FIXED COSTS	500.	500.	200.	2000.	0.	0.	500.	100.	500.	0.
CONUS	104000.	0.	4500.	86500.	18700.	1000.	0.	0.	0.	0.
ALASKA	0.	0.	0.	17000.	1360.	36.	0.	0.	0.	0.
CONUS OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
AKA OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
OCEANIC	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

SYSTEM: SELF CON	IMPLEMENTATION COSTS				ANNUAL RECURRING COSTS					
	HARDWARE	R AND D	TRAINING	UNASSIGNED	O AND M	SPARES	STAFF	CHARTING	OTHER	UNASSIGNED
FIXED COSTS	600.	2000.	500.	1000.	0.	0.	500.	100.	500.	0.
CONUS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALASKA	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS OFF-SH	0.	0.	400.	3500.	0.	0.	90.	50.	0.	0.
AKA OFF-SH	0.	0.	100.	500.	0.	0.	40.	50.	0.	0.
OCEANIC	0.	0.	100.	500.	0.	0.	60.	50.	0.	0.

SYSTEM: LORAN-C	IMPLEMENTATION COSTS				ANNUAL RECURRING COSTS					
	HARDWARE	R AND D	TRAINING	UNASSIGNED	O AND M	SPARES	STAFF	CHARTING	OTHER	UNASSIGNED
FIXED COSTS	1000.	2000.	500.	2000.	0.	0.	500.	100.	500.	0.
CONUS	42000.	0.	180.	21500.	0.	0.	0.	0.	690.	1400.
ALASKA	8000.	0.	30.	2500.	0.	0.	0.	0.	70.	250.
CONUS OFF-SH	54000.	0.	230.	12500.	0.	0.	0.	0.	180.	1800.
AKA OFF-SH	8000.	0.	100.	1500.	0.	0.	0.	0.	20.	250.
OCEANIC	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

FAA INCREMENTAL COSTS

SYSTEM: OMEGA	IMPLEMENTATION COSTS				ANNUAL RECURRING COSTS					
	HARDWARE	R AND D	TRAINING	UNASSIGNED	O AND M	SPARES	STAFF	CHARTING	OTHER	UNASSIGNED
FIXED COSTS	600.	2000.	500.	1000.	0.	0.	500.	100.	500.	0.
CONUS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALASKA	0.	0.	200.	1500.	0.	0.	20.	50.	0.	0.
CONUS OFF-SH	0.	0.	400.	3500.	0.	0.	90.	50.	0.	0.
AKA OFF-SH	0.	0.	100.	500.	0.	0.	40.	50.	0.	0.
OCEANIC	0.	0.	100.	500.	0.	0.	60.	50.	0.	0.

SYSTEM: OF OMEGA	IMPLEMENTATION COSTS				ANNUAL RECURRING COSTS					
	HARDWARE	R AND D	TRAINING	UNASSIGNED	O AND M	SPARES	STAFF	CHARTING	OTHER	UNASSIGNED
FIXED COSTS	600.	2000.	0.	500.	0.	0.	0.	0.	0.	0.
CONUS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALASKA	1080.	0.	400.	1500.	480.	240.	90.	0.	0.	0.
CONUS OFF-SH	2200.	0.	700.	3500.	440.	440.	20.	0.	0.	0.
AKA OFF-SH	500.	0.	100.	500.	160.	80.	30.	0.	0.	0.
OCEANIC	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

SYSTEM: GPS	IMPLEMENTATION COSTS				ANNUAL RECURRING COSTS					
	HARDWARE	R AND D	TRAINING	UNASSIGNED	O AND M	SPARES	STAFF	CHARTING	OTHER	UNASSIGNED
FIXED COSTS	0.	5000.	500.	2000.	0.	0.	500.	100.	500.	0.
CONUS	0.	0.	1500.	14500.	0.	0.	250.	100.	0.	0.
ALASKA	0.	0.	200.	1500.	0.	0.	20.	50.	0.	0.
CONUS OFF-SH	0.	0.	400.	3500.	0.	0.	90.	50.	0.	0.
AKA OFF-SH	0.	0.	100.	500.	0.	0.	40.	50.	0.	0.
OCEANIC	0.	0.	100.	500.	0.	0.	60.	50.	0.	0.

NSE Page 10-11: Percent of Non-FAA Costs Paid by the FAA

Pages 10 and 11 present the percent of the non-FAA costs which are assumed to be incurred by the FAA. This permits the model to address the scenarios wherein the FAA is to absorb some of the costs which would nominally be paid by other government agencies.

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RADIO NAVIGATION (SOURCE) SYSTEM COST SUMMARY (ALL COSTS IN THOUSANDS 1977 DOLLARS)

PERCENT OF NON FAA COSTS PAID BY FAA

SYSTEM: VOR	IMPLEMENTATION COSTS				ANNUAL RECURRING COSTS					
	HARDWARE	R AND D	TRAINING	UNASSIGNED	O AND M	SPARES	STAFF	CHARTING	OTHER	UNASSIGNED
FIXED COSTS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALASKA	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
AKA OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
OCEANIC	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

SYSTEM: SELF CON	IMPLEMENTATION COSTS				ANNUAL RECURRING COSTS					
	HARDWARE	R AND D	TRAINING	UNASSIGNED	O AND M	SPARES	STAFF	CHARTING	OTHER	UNASSIGNED
FIXED COSTS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALASKA	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
AKA OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
OCEANIC	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

SYSTEM: LORAN-C	IMPLEMENTATION COSTS				ANNUAL RECURRING COSTS					
	HARDWARE	R AND D	TRAINING	UNASSIGNED	O AND M	SPARES	STAFF	CHARTING	OTHER	UNASSIGNED
FIXED COSTS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALASKA	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
AKA OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
OCEANIC	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

PERCENT OF NON FAA COSTS PAID BY FAA

SYSTEM: OMEGA	IMPLEMENTATION COSTS				ANNUAL RECURRING COSTS					
	HARDWARE	R AND D	TRAINING	UNASSIGNED	O AND M	SPARES	STAFF	CHARTING	OTHER	UNASSIGNED
FIXED COSTS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALASKA	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
AKA OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
OCEANIC	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

SYSTEM: DF OMEGA	IMPLEMENTATION COSTS				ANNUAL RECURRING COSTS					
	HARDWARE	R AND D	TRAINING	UNASSIGNED	O AND M	SPARES	STAFF	CHARTING	OTHER	UNASSIGNED
FIXED COSTS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALASKA	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
AKA OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
OCEANIC	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

SYSTEM: GPS	IMPLEMENTATION COSTS				ANNUAL RECURRING COSTS					
	HARDWARE	R AND D	TRAINING	UNASSIGNED	O AND M	SPARES	STAFF	CHARTING	OTHER	UNASSIGNED
FIXED COSTS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALASKA	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONUS OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
AKA OFF-SH	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
OCEANIC	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

NSE Pages 12-17: Implementation Cost Distribution

Pages 12 through 17 present the percent of the total implementation costs, by type of cost, which is to be spent in each year. One page is provided for each system. Systems not implemented are so designated.

These data stem directly from user inputs; no nominal values exist. There are input options to ease the burden of input, such as automatic creation of uniform expense rates, and automatic equalization of the rates among the four cost types. Any distribution can be entered, however.

The implementation rates are applied to both the FAA and non-FAA costs.

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YEARLY PERCENT DISTRIBUTION OF FAA-INCURRED IMPLEMENTATION COSTS

COST TYPE CODE: (1) HARDWARE
(2) R AND D
(3) TRAINING
(4) UNASSIGNED

SYSTEM: VOR

YEAR	FIXED COSTS				REGION-INCREMENTAL (VARIABLE) COSTS																			
					CONUS				ALASKA				CONUS OFF-SH				AKA OFF-SH				OCEANIC			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
1978	16.7	16.7	16.7	16.7	14.0	17.0	17.0	22.0	16.7	16.7	16.7	16.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1979	16.7	16.7	16.7	16.7	29.0	17.0	17.0	22.0	16.7	16.7	16.7	16.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1980	16.7	16.7	16.7	16.7	34.0	17.0	17.0	22.0	16.7	16.7	16.7	16.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1981	16.7	16.7	16.7	16.7	23.0	17.0	17.0	18.0	16.7	16.7	16.7	16.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1982	16.7	16.7	16.7	16.7	.0	16.0	16.0	12.0	16.7	16.7	16.7	16.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1983	16.7	16.7	16.7	16.7	.0	16.0	16.0	4.0	16.7	16.7	16.7	16.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1984	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1985	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1986	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1987	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1988	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1989	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1990	.0	.0	.0	.0	.0	.0	.0	.0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1991	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1992	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1993	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1994	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1995	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1996	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1997	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1998	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1999	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2000	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2001	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2002	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2003	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2004	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2005	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2006	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2007	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2008	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2009	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2010	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

YEARLY PERCENT DISTRIBUTION OF FAA-INCURRED IMPLEMENTATION COSTS

COST TYPE CODE: (1) HARDWARE
(2) R AND D
(3) TRAINING
(4) UNASSIGNED

SYSTEM: SELF CON

YEAR	FIXED COSTS				REGION-INCREMENTAL (VARIABLE) COSTS																			
					CONUS				ALASKA				CONUS OFF-SH				AKA OFF-SH				OCEANIC			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
1978	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1979	50.0	50.0	50.0	50.0	.0	.0	.0	.0	.0	.0	.0	.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
1980	50.0	50.0	50.0	50.0	.0	.0	.0	.0	.0	.0	.0	.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
1981	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1982	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1983	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1984	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1985	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1986	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1987	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1988	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1989	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1990	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1991	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1992	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1993	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1994	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1995	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1996	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1997	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1998	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1999	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2000	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2001	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2002	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2003	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2004	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2005	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2006	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2007	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2008	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2009	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2010	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

YEARLY PERCENT DISTRIBUTION OF FAA-INCURRED IMPLEMENTATION COSTS

NO LORAN-C IMPLEMENTATION EXPENSE

YEARLY PERCENT DISTRIBUTION OF FAA-INCURRED IMPLEMENTATION COSTS

NO OMEGA IMPLEMENTATION EXPENSE

YEARLY PERCENT DISTRIBUTION OF FAA-INCURRED IMPLEMENTATION COSTS

NO OF OMEGA IMPLEMENTATION EXPENSE

YEARLY PERCENT DISTRIBUTION OF FAA-INCURRED IMPLEMENTATION COSTS

COST TYPE CODE: (1) HARDWARE
(2) R AND D
(3) TRAINING
(4) UNASSIGNED

SYSTEM: GPS ---------- REGION-INCREMENTAL (VARIABLE) COSTS ----------

YEAR	FIXED COSTS				CONUS				ALASKA				CONUS OFF-SH				AKA OFF-SH				OCEANIC			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
1978	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1979	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1980	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1981	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1982	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1983	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1984	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1985	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
1986	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
1987	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
1988	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
1989	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
1990	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1991	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1992	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1993	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1994	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1995	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1996	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1997	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1998	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1999	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2000	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2001	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2002	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2003	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2004	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2005	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2006	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2007	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2008	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2009	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2010	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

NSE Pages 18-23: FAA Expenses by System, Cost Type and Year

The FAA expenses by system, cost type and year are the first set of FAA cost results. This is designated as Output Option 1 (of 5). One page is provided for each system.

The cost types listed are the same as those previously described, except for the addition of a "net fee/reimbursement" column and the summary columns. The fee/reimbursement column was designed to provide options to examine the impact of various methods of user-FAA cost sharing. The cash outlay column is merely the sum of the preceding columns. Present value is based on the discount rate, as input.

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DETAILED FAA EXPENSES FOR NAVIGATION SYSTEM: VOR
(IN THOUSANDS OF DOLLARS)

OUTPUT OPTION 1

	IMPLEMENTATION COSTS				RECURRING COSTS						SUMMARY			
YEAR	HARDWARE	RESEARCH & DEV.	TRAIN	UNASGN	O AND M	SPARES	STAFF	CHARTS	OTHER	UNASGN	NET RE-IMB.	NET CASH OUTLAY	PRES VALUE	CUMUL PRES VAL
1978	15668.	89.	854.	23750.	21464.	1109.	535.	107.	535.	0.	0.	64112.	58284.	58284.
1979	34626.	95.	914.	25413.	22967.	1186.	572.	114.	572.	0.	0.	86460.	71455.	129738.
1980	43420.	102.	976.	27192.	24574.	1269.	613.	123.	613.	0.	0.	98883.	74292.	204030.
1981	31463.	109.	1046.	24560.	26295.	1358.	655.	131.	655.	0.	0.	86274.	58926.	262956.
1982	117.	117.	1057.	19000.	28135.	1453.	701.	140.	701.	0.	0.	51421.	31929.	294885.
1983	125.	125.	1131.	9945.	30105.	1555.	750.	150.	750.	0.	0.	44636.	25196.	320080.
1984	0.	0.	0.	0.	32212.	1664.	803.	161.	803.	0.	0.	35642.	18290.	338370.
1985	0.	0.	0.	0.	34467.	1780.	859.	172.	859.	0.	0.	38137.	17791.	356162.
1986	0.	0.	0.	0.	36879.	1905.	919.	184.	919.	0.	0.	40806.	17306.	373467.
1987	0.	0.	0.	0.	39461.	2038.	984.	197.	984.	0.	0.	43663.	16834.	390301.
1988	0.	0.	0.	0.	42223.	2181.	1052.	210.	1052.	0.	0.	46719.	16375.	406676.
1989	0.	0.	0.	0.	45179.	2333.	1126.	225.	1126.	0.	0.	49990.	15928.	422604.
1990	0.	0.	0.	0.	48341.	2497.	1205.	241.	1205.	0.	0.	53489.	15494.	438098.
1991	0.	0.	0.	0.	51725.	2671.	1289.	258.	1289.	0.	0.	57233.	15071.	453170.
1992	0.	0.	0.	0.	55346.	2858.	1380.	276.	1380.	0.	0.	61239.	14660.	467830.
1993	0.	0.	0.	0.	59220.	3058.	1476.	295.	1476.	0.	0.	65526.	14260.	482090.
1994	0.	0.	0.	0.	63366.	3273.	1579.	316.	1579.	0.	0.	70113.	13871.	495962.
1995	0.	0.	0.	0.	67801.	3502.	1690.	338.	1690.	0.	0.	75021.	13493.	509455.
1996	0.	0.	0.	0.	72548.	3747.	1808.	362.	1808.	0.	0.	80272.	13125.	522580.
1997	0.	0.	0.	0.	77626.	4009.	1935.	387.	1935.	0.	0.	85892.	12767.	535347.
1998	0.	0.	0.	0.	83060.	4290.	2070.	414.	2070.	0.	0.	91904.	12419.	547766.
1999	0.	0.	0.	0.	88874.	4590.	2215.	443.	2215.	0.	0.	98337.	12080.	559847.
2000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	559847.
2001	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	559847.
2002	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	[illegible]
2003	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	[illegible]
2004	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	559847.
2005	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	559847.
2006	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	559847.
2007	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	559847.
2008	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	559847.
2009	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	559847.
2010	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	559847.

DETAILED FAA EXPENSES FOR NAVIGATION SYSTEM: SELF CON
(IN THOUSANDS OF DOLLARS)

OUTPUT OPTION 1

	----IMPLEMENTATION COSTS----------				----------RECURRING COSTS----------							---------SUMMARY----------		
YEAR	HARDWARE	RESEARCH & DEV.	TRAIN	UNASGN	O AND M	SPARES	STAFF	CHARTS	OTHER	UNASGN	NET RE-IMB.	NET CASH OUTLAY	PRES VALUE	CUMUL PRES VAL
1978	0.	0.	0.	0.	0.	0.	738.	267.	535.	0.	0.	1541.	1401.	1401.
1979	343.	1145.	630.	3148.	0.	0.	790.	286.	572.	0.	0.	6915.	5715.	7116.
1980	368.	1225.	674.	3369.	0.	0.	845.	306.	613.	0.	0.	7399.	5559.	12675.
1981	0.	0.	0.	0.	0.	0.	904.	328.	655.	0.	0.	1888.	1289.	13964.
1982	0.	0.	0.	0.	0.	0.	968.	351.	701.	0.	0.	2020.	1254.	15218.
1983	0.	0.	0.	0.	0.	0.	1036.	375.	750.	0.	0.	2161.	1220.	16438.
1984	0.	0.	0.	0.	0.	0.	1108.	401.	803.	0.	0.	2312.	1187.	17625.
1985	0.	0.	0.	0.	0.	0.	1186.	430.	859.	0.	0.	2474.	1154.	18779.
1986	0.	0.	0.	0.	0.	0.	1269.	460.	919.	0.	0.	2647.	1123.	19902.
1987	0.	0.	0.	0.	0.	0.	1357.	492.	984.	0.	0.	2833.	1092.	20994.
1988	0.	0.	0.	0.	0.	0.	1452.	526.	1052.	0.	0.	3031.	1062.	22056.
1989	0.	0.	0.	0.	0.	0.	1554.	563.	1126.	0.	0.	3243.	1033.	23089.
1990	0.	0.	0.	0.	0.	0.	1663.	602.	1205.	0.	0.	3470.	1005.	24095.
1991	0.	0.	0.	0.	0.	0.	1779.	645.	1289.	0.	0.	3713.	978.	25072.
1992	0.	0.	0.	0.	0.	0.	1904.	690.	1380.	0.	0.	3973.	951.	26024.
1993	0.	0.	0.	0.	0.	0.	2037.	738.	1476.	0.	0.	4251.	925.	26949.
1994	0.	0.	0.	0.	0.	0.	2180.	790.	1579.	0.	0.	4549.	900.	27849.
1995	0.	0.	0.	0.	0.	0.	2332.	845.	1690.	0.	0.	4867.	875.	28724.
1996	0.	0.	0.	0.	0.	0.	2495.	904.	1808.	0.	0.	5208.	852.	29576.
1997	0.	0.	0.	0.	0.	0.	2670.	967.	1935.	0.	0.	5572.	828.	30404.
1998	0.	0.	0.	0.	0.	0.	2857.	1035.	2070.	0.	0.	5962.	806.	31210.
1999	0.	0.	0.	0.	0.	0.	3057.	1108.	2215.	0.	0.	6380.	784.	31993.
2000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	31993.
2001	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	31993.
2002	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	31993.
2003	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	31993.
2004	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	31993.
2005	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	31993.
2006	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	31993.
2007	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	31993.
2008	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	31993.
2009	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	31993.
2010	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	31993.

DETAILED FAA EXPENSES FOR NAVIGATION SYSTEM: LORAN-C OUTPUT OPTION 1
(IN THOUSANDS OF DOLLARS)

	IMPLEMENTATION COSTS				RECURRING COSTS						SUMMARY			
YEAR	HARDWARE	RESEARCH & DEV.	TRAIN	UNASGN	O AND M	SPARES	STAFF	CHARTS	OTHER	UNASGN	NET RE-IMB.	NET CASH OUTLAY	PRES VALUE	CUMUL PRES VAL
1978	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1979	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1980	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1981	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1982	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1983	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1984	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1985	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1986	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1987	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1988	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1989	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1990	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1991	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1992	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1993	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1994	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1995	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1996	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1997	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1998	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1999	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2001	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2002	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2003	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2004	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2005	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2006	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2007	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2008	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2009	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2010	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

DETAILED FAA EXPENSES FOR NAVIGATION SYSTEM: OMEGA
(IN THOUSANDS OF DOLLARS)

OUTPUT OPTION 1

	----IMPLEMENTATION COSTS----------				----------RECURRING COSTS----------							---------SUMMARY----------		
YEAR	HARDWARE	RESEARCH & DEV.	TRAIN	UNASGN	O AND M	SPARES	STAFF	CHARTS	OTHER	UNASGN	NET RE-IMB.	NET CASH OUTLAY	PRES VALUE	CUMUL PRES VAL
1978	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1979	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1980	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1981	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1982	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1983	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1984	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1985	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1986	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1987	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1988	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1989	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1990	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1991	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1992	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1993	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1994	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1995	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1996	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1997	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1998	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1999	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2001	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2002	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2003	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2004	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2005	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2006	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2007	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2008	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2009	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2010	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

DETAILED FAA EXPENSES FOR NAVIGATION SYSTEM: DF OMEGA
(IN THOUSANDS OF DOLLARS)

OUTPUT OPTION 1

	IMPLEMENTATION COSTS				RECURRING COSTS						SUMMARY			
YEAR	HARDWARE	RESEARCH & DEV.	TRAIN	UNASGN	O AND M	SPARES	STAFF	CHARTS	OTHER	UNASGN	NET RE-IMB.	NET CASH OUTLAY	PRES VALUE	CUMUL PRES VAL
1978	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1979	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1980	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1981	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1982	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1983	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1984	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1985	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1986	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1987	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1988	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1989	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1990	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1991	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1992	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1993	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1994	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1995	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1996	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1997	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1998	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1999	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2001	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2002	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2003	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2004	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2005	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2006	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2007	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2008	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2009	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2010	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

DETAILED FAA EXPENSES FOR NAVIGATION SYSTEM: GPS
(IN THOUSANDS OF DOLLARS)

OUTPUT OPTION 1

	IMPLEMENTATION COSTS				RECURRING COSTS							SUMMARY		
YEAR	HARDWARE	RESEARCH & DEV.	TRAIN	UNASGN	O AND M	SPARES	STAFF	CHARTS	OTHER	UNASGN	NET RE-IMB.	NET CASH OUTLAY	PRES VALUE	CUMUL PRES VAL
1978	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1979	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1980	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1981	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1982	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1983	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1984	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1985	0.	1718.	962.	7732.	0.	0.	330.	137.	172.	0.	0.	11051.	5156.	5156.
1986	0.	1838.	1030.	8273.	0.	0.	706.	294.	368.	0.	0.	12509.	5305.	10461.
1987	0.	1967.	1102.	8852.	0.	0.	1133.	472.	590.	0.	0.	14116.	5442.	15903.
1988	0.	2105.	1179.	9472.	0.	0.	1617.	674.	842.	0.	0.	15887.	5568.	21471.
1989	0.	2252.	1261.	10135.	0.	0.	2162.	901.	1126.	0.	0.	17837.	5684.	27155.
1990	0.	0.	0.	0.	0.	0.	2313.	964.	1205.	0.	0.	4482.	1298.	28453.
1991	0.	0.	0.	0.	0.	0.	2475.	1031.	1289.	0.	0.	4796.	1263.	29716.
1992	0.	0.	0.	0.	0.	0.	2649.	1104.	1380.	0.	0.	5132.	1229.	30945.
1993	0.	0.	0.	0.	0.	0.	2834.	1181.	1476.	0.	0.	5491.	1195.	32140.
1994	0.	0.	0.	0.	0.	0.	3032.	1264.	1579.	0.	0.	5875.	1162.	33302.
1995	0.	0.	0.	0.	0.	0.	3245.	1352.	1690.	0.	0.	6287.	1131.	34433.
1996	0.	0.	0.	0.	0.	0.	3472.	1447.	1808.	0.	0.	6727.	1100.	35533.
1997	0.	0.	0.	0.	0.	0.	3715.	1548.	1935.	0.	0.	7198.	1070.	36603.
1998	0.	0.	0.	0.	0.	0.	3975.	1656.	2070.	0.	0.	7701.	1041.	37643.
1999	0.	0.	0.	0.	0.	0.	4253.	1772.	2215.	0.	0.	8241.	1012.	38656.
2000	0.	0.	0.	0.	0.	0.	4551.	1896.	2370.	0.	0.	8817.	985.	39640.
2001	0.	0.	0.	0.	0.	0.	4869.	2029.	2536.	0.	0.	9435.	958.	40598.
2002	0.	0.	0.	0.	0.	0.	5210.	2171.	2714.	0.	0.	10095.	932.	41530.
2003	0.	0.	0.	0.	0.	0.	5575.	2323.	2904.	0.	0.	10802.	906.	42436.
2004	0.	0.	0.	0.	0.	0.	5965.	2486.	3107.	0.	0.	11558.	882.	43318.
2005	0.	0.	0.	0.	0.	0.	6383.	2660.	3324.	0.	0.	12367.	858.	44175.
2006	0.	0.	0.	0.	0.	0.	6830.	2846.	3557.	0.	0.	13233.	834.	45010.
2007	0.	0.	0.	0.	0.	0.	7308.	3045.	3806.	0.	0.	14159.	811.	45821.
2008	0.	0.	0.	0.	0.	0.	7819.	3258.	4073.	0.	0.	15150.	789.	46610.
2009	0.	0.	0.	0.	0.	0.	8367.	3486.	4358.	0.	0.	16210.	768.	47378.
2010	0.	0.	0.	0.	0.	0.	8952.	3730.	4663.	0.	0.	17345.	747.	48125.

NSE Pages 24-29: FAA Expenses by Region

FAA expenses by region (Output Option 2) are provided in the same format as the expenses by system (Option 1). Rather than dividing the costs by system, Option 2 provides one page of output for each region, beginning with the "fixed costs."

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DETAILED FAA EXPENSES FOR FIXED COSTS
(IN THOUSANDS OF DOLLARS)

OUTPUT OPTION 2

	IMPLEMENTATION COSTS				RECURRING COSTS						SUMMARY			
YEAR	HARDWARE	RESEARCH & DEV.	TRAIN	UNASGN	O AND M	SPARES	STAFF	CHARTS	OTHER	UNASGN	NET RE-IMB.	NET CASH OUTLAY	PRES VALUE	CUMUL PRES VAL
1978	89.	89.	36.	357.	0.	0.	1070.	214.	1070.	0.	0.	2925.	2659.	2659.
1979	439.	1240.	324.	954.	0.	0.	1145.	229.	1145.	0.	0.	5476.	4526.	7185.
1980	470.	1327.	347.	1021.	0.	0.	1225.	245.	1225.	0.	0.	5860.	4403.	11587.
1981	109.	109.	44.	437.	0.	0.	1311.	262.	1311.	0.	0.	3583.	2447.	14034.
1982	117.	117.	47.	468.	0.	0.	1403.	281.	1403.	0.	0.	3834.	2380.	16415.
1983	125.	125.	50.	500.	0.	0.	1501.	300.	1501.	0.	0.	4102.	2315.	18730.
1984	0.	0.	0.	0.	0.	0.	1606.	321.	1606.	0.	0.	3533.	1813.	20543.
1985	0.	1718.	172.	687.	0.	0.	1890.	378.	1890.	0.	0.	6735.	3142.	23685.
1986	0.	1838.	184.	735.	0.	0.	2206.	441.	2206.	0.	0.	7611.	3228.	26913.
1987	0.	1967.	197.	787.	0.	0.	2557.	511.	2557.	0.	0.	8577.	3307.	30220.
1988	0.	2105.	210.	842.	0.	0.	2947.	589.	2947.	0.	0.	9640.	3379.	33599.
1989	0.	2252.	225.	901.	0.	0.	3378.	676.	3378.	0.	0.	10811.	3445.	37043.
1990	0.	0.	0.	0.	0.	0.	3615.	723.	3615.	0.	0.	7952.	2304.	39347.
1991	0.	0.	0.	0.	0.	0.	3868.	774.	3868.	0.	0.	8509.	2241.	41588.
1992	0.	0.	0.	0.	0.	0.	4139.	828.	4139.	0.	0.	9105.	2180.	43767.
1993	0.	0.	0.	0.	0.	0.	4428.	886.	4428.	0.	0.	9742.	2120.	45887.
1994	0.	0.	0.	0.	0.	0.	4738.	948.	4738.	0.	0.	10424.	2062.	47950.
1995	0.	0.	0.	0.	0.	0.	5070.	1014.	5070.	0.	0.	11154.	2006.	49956.
1996	0.	0.	0.	0.	0.	0.	5425.	1085.	5425.	0.	0.	11935.	1951.	51907.
1997	0.	0.	0.	0.	0.	0.	5805.	1161.	5805.	0.	0.	12770.	1898.	53805.
1998	0.	0.	0.	0.	0.	0.	6211.	1242.	6211.	0.	0.	13664.	1846.	55652.
1999	0.	0.	0.	0.	0.	0.	6646.	1329.	6646.	0.	0.	14620.	1796.	57448.
2000	0.	0.	0.	0.	0.	0.	2370.	474.	2370.	0.	0.	5215.	582.	58030.
2001	0.	0.	0.	0.	0.	0.	2536.	507.	2536.	0.	0.	5580.	566.	58597.
2002	0.	0.	0.	0.	0.	0.	2714.	543.	2714.	0.	0.	5971.	551.	59148.
2003	0.	0.	0.	0.	0.	0.	2904.	581.	2904.	0.	0.	6389.	536.	59684.
2004	0.	0.	0.	0.	0.	0.	3107.	621.	3107.	0.	0.	6835.	521.	60205.
2005	0.	0.	0.	0.	0.	0.	3324.	665.	3324.	0.	0.	7314.	507.	60712.
2006	0.	0.	0.	0.	0.	0.	3557.	711.	3557.	0.	0.	7826.	493.	61205.
2007	0.	0.	0.	0.	0.	0.	3806.	761.	3806.	0.	0.	8373.	480.	61685.
2008	0.	0.	0.	0.	0.	0.	4073.	815.	4073.	0.	0.	8960.	467.	62152.
2009	0.	0.	0.	0.	0.	0.	4358.	872.	4358.	0.	0.	9587.	454.	62606.
2010	0.	0.	0.	0.	0.	0.	4663.	933.	4663.	0.	0.	10258.	442.	63048.

DETAILED FAA EXPENSES FOR CONUS
(IN THOUSANDS OF DOLLARS)

OUTPUT OPTION 2

	IMPLEMENTATION COSTS				RECURRING COSTS						SUMMARY			
YEAR	HARDWARE	RESEARCH & DEV.	TRAIN	UNASGN	O AND M	SPARES	STAFF	CHARTS	OTHER	UNASGN	NET RE-IMB.	NET CASH OUTLAY	PRES VALUE	CUMUL PRES VAL
1978	15579.	0.	619.	20362.	20009.	1070.	0.	0.	0.	0.	0.	57839.	52581.	52581.
1979	34530.	0.	870.	21787.	21410.	1145.	0.	0.	0.	0.	0.	79748.	65907.	118488.
1980	43318.	0.	937.	23313.	22908.	1225.	0.	0.	0.	0.	0.	91701.	68896.	187384.
1981	31354.	0.	1003.	20409.	24512.	1311.	0.	0.	0.	0.	0.	78589.	53677.	241061.
1982	0.	0.	1010.	14558.	26228.	1403.	0.	0.	0.	0.	0.	43199.	26823.	267884.
1983	0.	0.	1081.	5193.	28064.	1501.	0.	0.	0.	0.	0.	35837.	20229.	288114.
1984	0.	0.	0.	0.	30028.	1606.	0.	0.	0.	0.	0.	31634.	16233.	304347.
1985	0.	0.	515.	4983.	32130.	1718.	86.	34.	0.	0.	0.	39467.	18412.	322758.
1986	0.	0.	552.	5332.	34379.	1838.	184.	74.	0.	0.	0.	42358.	17964.	340722.
1987	0.	0.	590.	5705.	36786.	1967.	295.	118.	0.	0.	0.	45461.	17527.	358249.
1988	0.	0.	631.	6104.	39361.	2105.	421.	168.	0.	0.	0.	48790.	17101.	375350.
1989	0.	0.	676.	6531.	42116.	2252.	563.	225.	0.	0.	0.	52363.	16685.	392035.
1990	0.	0.	0.	0.	45064.	2410.	602.	241.	0.	0.	0.	48317.	13996.	406031.
1991	0.	0.	0.	0.	48219.	2579.	645.	258.	0.	0.	0.	51700.	13614.	419645.
1992	0.	0.	0.	0.	51594.	2759.	690.	276.	0.	0.	0.	55319.	13243.	432888.
1993	0.	0.	0.	0.	55205.	2952.	738.	295.	0.	0.	0.	59191.	12882.	445769.
1994	0.	0.	0.	0.	59070.	3159.	790.	316.	0.	0.	0.	63334.	12530.	458300.
1995	0.	0.	0.	0.	63205.	3380.	845.	338.	0.	0.	0.	67768.	12189.	470488.
1996	0.	0.	0.	0.	67629.	3617.	904.	362.	0.	0.	0.	72511.	11856.	482344.
1997	0.	0.	0.	0.	72363.	3870.	967.	387.	0.	0.	0.	77587.	11533.	493877.
1998	0.	0.	0.	0.	77429.	4141.	1035.	414.	0.	0.	0.	83018.	11218.	505096.
1999	0.	0.	0.	0.	82848.	4430.	1108.	443.	0.	0.	0.	88830.	10912.	516008.
2000	0.	0.	0.	0.	0.	0.	1185.	474.	0.	0.	0.	1659.	185.	516193.
2001	0.	0.	0.	0.	0.	0.	1268.	507.	0.	0.	0.	1775.	180.	516373.
2002	0.	0.	0.	0.	0.	0.	1357.	543.	0.	0.	0.	1900.	175.	516549.
2003	0.	0.	0.	0.	0.	0.	1452.	581.	0.	0.	0.	2033.	171.	516719.
2004	0.	0.	0.	0.	0.	0.	1553.	621.	0.	0.	0.	2175.	166.	516885.
2005	0.	0.	0.	0.	0.	0.	1662.	665.	0.	0.	0.	2327.	161.	517047.
2006	0.	0.	0.	0.	0.	0.	1779.	711.	0.	0.	0.	2490.	157.	517203.
2007	0.	0.	0.	0.	0.	0.	1903.	761.	0.	0.	0.	2664.	153.	517356.
2008	0.	0.	0.	0.	0.	0.	2036.	815.	0.	0.	0.	2851.	149.	517505.
2009	0.	0.	0.	0.	0.	0.	2179.	872.	0.	0.	0.	3050.	144.	517649.
2010	0.	0.	0.	0.	0.	0.	2331.	933.	0.	0.	0.	3264.	141.	517790.

DETAILED FAA EXPENSES FOR ALASKA
(IN THOUSANDS OF DOLLARS)

OUTPUT OPTION 2

	IMPLEMENTATION COSTS				RECURRING COSTS						SUMMARY			
YEAR	HARDWARE	RESEARCH & DEV.	TRAIN	UNASGN	O AND M	SPARES	STAFF	CHARTS	OTHER	UNASGN	NET RE-IMB.	NET CASH OUTLAY	PRES VALUE	CUMUL PRES VAL
1978	0.	0.	0.	3032.	1455.	39.	0.	0.	0.	0.	0.	4525.	4114.	4114.
1979	0.	0.	0.	3244.	1557.	41.	0.	0.	0.	0.	0.	4842.	4002.	8116.
1980	0.	0.	0.	3471.	1666.	44.	0.	0.	0.	0.	0.	5181.	3893.	12008.
1981	0.	0.	0.	3714.	1783.	47.	0.	0.	0.	0.	0.	5544.	3786.	15795.
1982	0.	0.	0.	3974.	1907.	50.	0.	0.	0.	0.	0.	5932.	3683.	19478.
1983	0.	0.	0.	4252.	2041.	54.	0.	0.	0.	0.	0.	6347.	3583.	23061.
1984	0.	0.	0.	0.	2184.	58.	0.	0.	0.	0.	0.	2242.	1150.	24211.
1985	0.	0.	69.	515.	2337.	62.	7.	17.	0.	0.	0.	3007.	1403.	25614.
1986	0.	0.	74.	552.	2500.	66.	15.	37.	0.	0.	0.	3243.	1375.	26989.
1987	0.	0.	79.	590.	2675.	71.	24.	59.	0.	0.	0.	3498.	1348.	28338.
1988	0.	0.	84.	631.	2863.	76.	34.	84.	0.	0.	0.	3772.	1322.	29660.
1989	0.	0.	90.	676.	3063.	81.	45.	113.	0.	0.	0.	4067.	1296.	30956.
1990	0.	0.	0.	0.	3277.	87.	48.	120.	0.	0.	0.	3533.	1023.	31979.
1991	0.	0.	0.	0.	3507.	93.	52.	129.	0.	0.	0.	3780.	995.	32975.
1992	0.	0.	0.	0.	3752.	99.	55.	138.	0.	0.	0.	4045.	968.	33943.
1993	0.	0.	0.	0.	4015.	106.	59.	148.	0.	0.	0.	4328.	942.	34885.
1994	0.	0.	0.	0.	4296.	114.	63.	158.	0.	0.	0.	4631.	916.	35801.
1995	0.	0.	0.	0.	4597.	122.	68.	169.	0.	0.	0.	4955.	891.	36692.
1996	0.	0.	0.	0.	4918.	130.	72.	181.	0.	0.	0.	5302.	867.	37559.
1997	0.	0.	0.	0.	5263.	139.	77.	193.	0.	0.	0.	5673.	843.	38402.
1998	0.	0.	0.	0.	5631.	149.	83.	207.	0.	0.	0.	6070.	820.	39222.
1999	0.	0.	0.	0.	6025.	159.	89.	222.	0.	0.	0.	6495.	798.	40020.
2000	0.	0.	0.	0.	0.	0.	95.	237.	0.	0.	0.	332.	37.	40057.
2001	0.	0.	0.	0.	0.	0.	101.	254.	0.	0.	0.	355.	36.	40093.
2002	0.	0.	0.	0.	0.	0.	109.	271.	0.	0.	0.	380.	35.	40129.
2003	0.	0.	0.	0.	0.	0.	116.	290.	0.	0.	0.	407.	34.	40163.
2004	0.	0.	0.	0.	0.	0.	124.	311.	0.	0.	0.	435.	33.	40196.
2005	0.	0.	0.	0.	0.	0.	133.	332.	0.	0.	0.	465.	32.	40228.
2006	0.	0.	0.	0.	0.	0.	142.	356.	0.	0.	0.	498.	31.	40260.
2007	0.	0.	0.	0.	0.	0.	152.	381.	0.	0.	0.	533.	31.	40290.
2008	0.	0.	0.	0.	0.	0.	163.	407.	0.	0.	0.	570.	30.	40320.
2009	0.	0.	0.	0.	0.	0.	174.	436.	0.	0.	0.	610.	29.	40349.
2010	0.	0.	0.	0.	0.	0.	187.	466.	0.	0.	0.	653.	28.	40377.

DETAILED FAA EXPENSES FOR CONUS OFF-SH
(IN THOUSANDS OF DOLLARS)

OUTPUT OPTION 2

	IMPLEMENTATION COSTS				RECURRING COSTS						SUMMARY			
YEAR	HARDWARE	RESEARCH & DEV.	TRAIN	UNASGN	O AND M	SPARES	STAFF	CHARTS	OTHER	UNASGN	NET RE-IMB.	NET CASH OUTLAY	PRES VALUE	CUMUL PRES VAL
1978	0.	0.	0.	0.	0.	0.	90.	53.	0.	0.	0.	150.	136.	136.
1979	0.	0.	229.	2004.	0.	0.	103.	57.	0.	0.	0.	2393.	1978.	2114.
1980	0.	0.	245.	2144.	0.	0.	110.	61.	0.	0.	0.	2560.	1924.	4037.
1981	0.	0.	0.	0.	0.	0.	118.	66.	0.	0.	0.	184.	125.	4163.
1982	0.	0.	0.	0.	0.	0.	126.	70.	0.	0.	0.	196.	122.	4285.
1983	0.	0.	0.	0.	0.	0.	135.	75.	0.	0.	0.	210.	119.	4403.
1984	0.	0.	0.	0.	0.	0.	145.	80.	0.	0.	0.	225.	115.	4519.
1985	0.	0.	137.	1203.	0.	0.	186.	103.	0.	0.	0.	1629.	760.	5278.
1986	0.	0.	147.	1287.	0.	0.	232.	129.	0.	0.	0.	1794.	761.	6039.
1987	0.	0.	157.	1377.	0.	0.	283.	157.	0.	0.	0.	1975.	761.	6801.
1988	0.	0.	168.	1473.	0.	0.	341.	189.	0.	0.	0.	2172.	761.	7562.
1989	0.	0.	180.	1577.	0.	0.	405.	225.	0.	0.	0.	2387.	761.	8323.
1990	0.	0.	0.	0.	0.	0.	434.	241.	0.	0.	0.	675.	195.	8518.
1991	0.	0.	0.	0.	0.	0.	464.	258.	0.	0.	0.	722.	190.	8708.
1992	0.	0.	0.	0.	0.	0.	497.	276.	0.	0.	0.	773.	185.	8893.
1993	0.	0.	0.	0.	0.	0.	531.	295.	0.	0.	0.	827.	180.	9073.
1994	0.	0.	0.	0.	0.	0.	569.	316.	0.	0.	0.	884.	175.	9248.
1995	0.	0.	0.	0.	0.	0.	608.	338.	0.	0.	0.	946.	170.	9419.
1996	0.	0.	0.	0.	0.	0.	651.	362.	0.	0.	0.	1013.	166.	9584.
1997	0.	0.	0.	0.	0.	0.	697.	387.	0.	0.	0.	1084.	161.	9745.
1998	0.	0.	0.	0.	0.	0.	745.	414.	0.	0.	0.	1159.	157.	9902.
1999	0.	0.	0.	0.	0.	0.	797.	443.	0.	0.	0.	1241.	152.	10054.
2000	0.	0.	0.	0.	0.	0.	427.	237.	0.	0.	0.	664.	74.	10128.
2001	0.	0.	0.	0.	0.	0.	457.	254.	0.	0.	0.	710.	72.	10200.
2002	0.	0.	0.	0.	0.	0.	488.	271.	0.	0.	0.	760.	70.	10271.
2003	0.	0.	0.	0.	0.	0.	523.	290.	0.	0.	0.	813.	68.	10339.
2004	0.	0.	0.	0.	0.	0.	559.	311.	0.	0.	0.	870.	66.	10405.
2005	0.	0.	0.	0.	0.	0.	598.	332.	0.	0.	0.	931.	65.	10470.
2006	0.	0.	0.	0.	0.	0.	640.	356.	0.	0.	0.	996.	63.	10532.
2007	0.	0.	0.	0.	0.	0.	685.	381.	0.	0.	0.	1066.	61.	10594.
2008	0.	0.	0.	0.	0.	0.	733.	407.	0.	0.	0.	1140.	59.	10653.
2009	0.	0.	0.	0.	0.	0.	784.	436.	0.	0.	0.	1220.	58.	10711.
2010	0.	0.	0.	0.	0.	0.	839.	466.	0.	0.	0.	1306.	56.	10767.

DETAILED FAA EXPENSES FOR AKA OFF-SM
(IN THOUSANDS OF DOLLARS)

OUTPUT OPTION 2

	IMPLEMENTATION COSTS				RECURRING COSTS						SUMMARY			
YEAR	HARDWARE	RESEARCH & DEV.	TRAIN	UNASGN	O AND M	SPARES	STAFF	CHARTS	OTHER	UNASGN	NET RE-IMB.	NET CASH OUTLAY	PRES VALUE	CUMUL PRES VAL
1978	0.	0.	0.	0.	0.	0.	43.	53.	0.	0.	0.	96.	88.	88.
1979	0.	0.	57.	286.	0.	0.	46.	57.	0.	0.	0.	447.	369.	457.
1980	0.	0.	61.	306.	0.	0.	49.	61.	0.	0.	0.	478.	359.	816.
1981	0.	0.	0.	0.	0.	0.	52.	66.	0.	0.	0.	118.	81.	896.
1982	0.	0.	0.	0.	0.	0.	56.	70.	0.	0.	0.	126.	78.	974.
1983	0.	0.	0.	0.	0.	0.	60.	75.	0.	0.	0.	135.	76.	1051.
1984	0.	0.	0.	0.	0.	0.	64.	80.	0.	0.	0.	145.	74.	1125.
1985	0.	0.	34.	172.	0.	0.	82.	103.	0.	0.	0.	392.	183.	1308.
1986	0.	0.	37.	184.	0.	0.	103.	129.	0.	0.	0.	452.	192.	1499.
1987	0.	0.	39.	197.	0.	0.	126.	157.	0.	0.	0.	519.	200.	1700.
1988	0.	0.	42.	210.	0.	0.	152.	189.	0.	0.	0.	594.	208.	1908.
1989	0.	0.	45.	225.	0.	0.	180.	225.	0.	0.	0.	676.	215.	2123.
1990	0.	0.	0.	0.	0.	0.	193.	241.	0.	0.	0.	434.	126.	2249.
1991	0.	0.	0.	0.	0.	0.	206.	258.	0.	0.	0.	464.	122.	2371.
1992	0.	0.	0.	0.	0.	0.	221.	276.	0.	0.	0.	497.	119.	2490.
1993	0.	0.	0.	0.	0.	0.	236.	295.	0.	0.	0.	531.	116.	2605.
1994	0.	0.	0.	0.	0.	0.	253.	316.	0.	0.	0.	569.	112.	2718.
1995	0.	0.	0.	0.	0.	0.	270.	338.	0.	0.	0.	608.	109.	2827.
1996	0.	0.	0.	0.	0.	0.	289.	362.	0.	0.	0.	651.	106.	2934.
1997	0.	0.	0.	0.	0.	0.	310.	387.	0.	0.	0.	697.	104.	3037.
1998	0.	0.	0.	0.	0.	0.	331.	414.	0.	0.	0.	745.	101.	3138.
1999	0.	0.	0.	0.	0.	0.	354.	443.	0.	0.	0.	797.	98.	3236.
2000	0.	0.	0.	0.	0.	0.	190.	237.	0.	0.	0.	427.	48.	3284.
2001	0.	0.	0.	0.	0.	0.	203.	254.	0.	0.	0.	457.	46.	3330.
2002	0.	0.	0.	0.	0.	0.	217.	271.	0.	0.	0.	488.	45.	3375.
2003	0.	0.	0.	0.	0.	0.	232.	290.	0.	0.	0.	523.	44.	3419.
2004	0.	0.	0.	0.	0.	0.	249.	311.	0.	0.	0.	559.	43.	3462.
2005	0.	0.	0.	0.	0.	0.	266.	332.	0.	0.	0.	598.	41.	3503.
2006	0.	0.	0.	0.	0.	0.	285.	356.	0.	0.	0.	640.	40.	3543.
2007	0.	0.	0.	0.	0.	0.	304.	381.	0.	0.	0.	685.	39.	3583.
2008	0.	0.	0.	0.	0.	0.	326.	407.	0.	0.	0.	733.	38.	3621.
2009	0.	0.	0.	0.	0.	0.	349.	436.	0.	0.	0.	784.	37.	3658.
2010	0.	0.	0.	0.	0.	0.	373.	466.	0.	0.	0.	839.	36.	3694.

DETAILED FAA EXPENSES FOR OCEANIC
(IN THOUSANDS OF DOLLARS)

OUTPUT OPTION 2

	IMPLEMENTATION COSTS				RECURRING COSTS						SUMMARY			
YEAR	HARDWARE	RESEARCH & DEV.	TRAIN	UNASGN	O AND M	SPARES	STAFF	CHARTS	OTHER	UNASGN	NET RE-IMB.	NET CASH OUTLAY	PRES VALUE	CUMUL PRES VAL
1978	0.	0.	0.	0.	0.	0.	64.	53.	0.	0.	0.	118.	107.	107.
1979	0.	0.	57.	286.	0.	0.	69.	57.	0.	0.	0.	469.	388.	495.
1980	0.	0.	61.	306.	0.	0.	74.	61.	0.	0.	0.	502.	377.	872.
1981	0.	0.	0.	0.	0.	0.	79.	66.	0.	0.	0.	144.	98.	971.
1982	0.	0.	0.	0.	0.	0.	84.	70.	0.	0.	0.	154.	96.	1067.
1983	0.	0.	0.	0.	0.	0.	90.	75.	0.	0.	0.	165.	93.	1160.
1984	0.	0.	0.	0.	0.	0.	96.	80.	0.	0.	0.	177.	91.	1250.
1985	0.	0.	34.	172.	0.	0.	124.	103.	0.	0.	0.	433.	202.	1452.
1986	0.	0.	37.	184.	0.	0.	154.	129.	0.	0.	0.	504.	214.	1666.
1987	0.	0.	39.	197.	0.	0.	189.	157.	0.	0.	0.	582.	224.	1891.
1988	0.	0.	42.	210.	0.	0.	227.	189.	0.	0.	0.	669.	235.	2125.
1989	0.	0.	45.	225.	0.	0.	270.	225.	0.	0.	0.	766.	244.	2369.
1990	0.	0.	0.	0.	0.	0.	289.	241.	0.	0.	0.	530.	154.	2523.
1991	0.	0.	0.	0.	0.	0.	309.	258.	0.	0.	0.	567.	149.	2672.
1992	0.	0.	0.	0.	0.	0.	331.	276.	0.	0.	0.	607.	145.	2817.
1993	0.	0.	0.	0.	0.	0.	354.	295.	0.	0.	0.	649.	141.	2959.
1994	0.	0.	0.	0.	0.	0.	379.	316.	0.	0.	0.	695.	137.	3096.
1995	0.	0.	0.	0.	0.	0.	406.	338.	0.	0.	0.	744.	134.	3230.
1996	0.	0.	0.	0.	0.	0.	434.	362.	0.	0.	0.	796.	130.	3360.
1997	0.	0.	0.	0.	0.	0.	464.	387.	0.	0.	0.	851.	127.	3487.
1998	0.	0.	0.	0.	0.	0.	497.	414.	0.	0.	0.	911.	123.	3610.
1999	0.	0.	0.	0.	0.	0.	532.	443.	0.	0.	0.	975.	120.	3729.
2000	0.	0.	0.	0.	0.	0.	284.	237.	0.	0.	0.	521.	58.	3788.
2001	0.	0.	0.	0.	0.	0.	304.	254.	0.	0.	0.	558.	57.	3844.
2002	0.	0.	0.	0.	0.	0.	326.	271.	0.	0.	0.	597.	55.	3899.
2003	0.	0.	0.	0.	0.	0.	346.	290.	0.	0.	0.	639.	54.	3953.
2004	0.	0.	0.	0.	0.	0.	373.	311.	0.	0.	0.	684.	52.	4005.
2005	0.	0.	0.	0.	0.	0.	399.	332.	0.	0.	0.	731.	51.	4056.
2006	0.	0.	0.	0.	0.	0.	427.	356.	0.	0.	0.	783.	49.	4105.
2007	0.	0.	0.	0.	0.	0.	457.	381.	0.	0.	0.	837.	48.	4153.
2008	0.	0.	0.	0.	0.	0.	489.	407.	0.	0.	0.	896.	47.	4200.
2009	0.	0.	0.	0.	0.	0.	523.	436.	0.	0.	0.	959.	45.	4245.
2010	0.	0.	0.	0.	0.	0.	560.	466.	0.	0.	0.	1026.	44.	4289.

NSE Pages 30-32: FAA Summary Output

Three FAA summary output pages are available (Output Options 3, 4, and 5), each dividing the total FAA costs in a different way. Page 30 presents FAA cost results by region; page 31 presents the results by system; page 32 presents the results by type of cost. The "bottom lines" on each page, logically, are the same.

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FAA EXPENSES BY REGION/YEAR
(IN THOUSANDS OF DOLLARS)

OUTPUT OPTION 3

	CASH OUTLAY						SUMMARY		
YEAR	FIXED COSTS	CONUS	ALASKA	CONUS OFF-SH	AKA OFF-SH	OCEANIC	TOTAL	PRESENT VALUE	CUMULATIVE PRES VAL
1978	2925.	57839.	4525.	150.	96.	118.	65653.	59684.	59684.
1979	5476.	79748.	4842.	2393.	447.	469.	93375.	77170.	136854.
1980	5800.	91701.	5181.	2560.	478.	502.	106282.	79851.	216705.
1981	3583.	78589.	5544.	184.	118.	144.	88161.	60215.	276920.
1982	3854.	43194.	5932.	196.	126.	154.	53441.	33183.	310103.
1983	4102.	35837.	6347.	210.	135.	165.	46797.	26416.	336519.
1984	3533.	31634.	2242.	225.	145.	177.	37954.	19477.	355995.
1985	6735.	34467.	3097.	1629.	392.	433.	51662.	24101.	380096.
1986	7611.	42356.	3243.	1794.	452.	504.	55963.	23734.	403830.
1987	8577.	45461.	3498.	1975.	519.	582.	60612.	23368.	427198.
1988	9640.	48790.	3772.	2172.	594.	669.	65636.	23006.	450204.
1989	10811.	52363.	4067.	2387.	676.	766.	71070.	22645.	472849.
1990	7952.	48317.	3533.	675.	434.	530.	61441.	17797.	490646.
1991	8509.	51700.	3780.	722.	464.	567.	65742.	17312.	507958.
1992	9105.	55319.	4045.	773.	497.	607.	70344.	16840.	524798.
1993	9742.	59191.	4328.	827.	531.	649.	75268.	16381.	541179.
1994	10424.	63334.	4631.	884.	569.	695.	80537.	15934.	557112.
1995	11154.	67768.	4955.	946.	608.	744.	86175.	15499.	572612.
1996	11935.	72511.	5302.	1013.	651.	796.	92207.	15077.	587688.
1997	12770.	77587.	5673.	1084.	697.	851.	98661.	14665.	602354.
1998	13664.	83018.	6070.	1159.	745.	911.	105568.	14265.	616619.
1999	14620.	88830.	6495.	1241.	797.	975.	112958.	13876.	630496.
2000	5215.	1659.	532.	664.	427.	521.	8817.	985.	631480.
2001	5580.	1775.	355.	710.	457.	558.	9435.	958.	632438.
2002	5970.	1900.	380.	760.	488.	597.	10095.	932.	633370.
2003	6388.	2033.	407.	813.	523.	639.	10802.	906.	634276.
2004	6835.	2175.	435.	870.	559.	684.	11558.	882.	635158.
2005	7314.	2327.	465.	931.	598.	731.	12370.	858.	[illegible]
2006	7828.	2490.	498.	996.	640.	783.	13233.	834.	636849.
2007	8373.	2664.	533.	1066.	685.	837.	14159.	811.	637661.
2008	8960.	2851.	570.	1140.	733.	896.	15150.	789.	638450.
2009	9587.	3050.	610.	1220.	784.	959.	16210.	768.	639218.
2010	10258.	3264.	653.	1306.	839.	1026.	17345.	747.	639965.

FAA EXPENSES BY SYSTEM/YEAR
(IN THOUSANDS OF DOLLARS)

OUTPUT OPTION 4

YEAR	CASH OUTLAY: VOR	SELF CON	LORAN-C	OMEGA	OF OMEGA	GPS	SUMMARY: TOTAL	PRESENT VALUE	CUMULATIVE PRES VAL
1978	64112.	1541.	0.	0.	0.	0.	65653.	59684.	59684.
1979	86460.	6915.	0.	0.	0.	0.	93375.	77170.	136854.
1980	98883.	7399.	0.	0.	0.	0.	106282.	79851.	216705.
1981	86274.	1886.	0.	0.	0.	0.	88161.	60215.	276920.
1982	51421.	2020.	0.	0.	0.	0.	53441.	33183.	310103.
1983	44636.	2161.	0.	0.	0.	0.	46797.	26416.	336519.
1984	35642.	2312.	0.	0.	0.	0.	37954.	19477.	355995.
1985	38137.	2474.	0.	0.	0.	11051.	51662.	24101.	380096.
1986	40806.	2647.	0.	0.	0.	12509.	55963.	23734.	403830.
1987	43663.	2833.	0.	0.	0.	14116.	60612.	23368.	427198.
1988	46719.	3031.	0.	0.	0.	15887.	65638.	23006.	450204.
1989	49990.	3245.	0.	0.	0.	17837.	71070.	22645.	472849.
1990	53489.	3470.	0.	0.	0.	4482.	61441.	17797.	490646.
1991	57233.	3713.	0.	0.	0.	4796.	65742.	17312.	507958.
1992	61239.	3973.	0.	0.	0.	5132.	70344.	16840.	524798.
1993	65526.	4251.	0.	0.	0.	5491.	75268.	16381.	541179.
1994	70113.	4549.	0.	0.	0.	5875.	80537.	15934.	557112.
1995	75021.	4867.	0.	0.	0.	6287.	86175.	15499.	572612.
1996	80272.	5208.	0.	0.	0.	6727.	92207.	15077.	587688.
1997	85892.	5572.	0.	0.	0.	7198.	98661.	14665.	602354.
1998	91904.	5962.	0.	0.	0.	7701.	105568.	14265.	616619.
1999	98337.	6380.	0.	0.	0.	8241.	112958.	13876.	630496.
2000	0.	0.	0.	0.	0.	8817.	8817.	985.	631480.
2001	0.	0.	0.	0.	0.	9435.	9435.	958.	632438.
2002	0.	0.	0.	0.	0.	10095.	10095.	932.	633370.
2003	0.	0.	0.	0.	0.	10802.	10802.	906.	634276.
2004	0.	0.	0.	0.	0.	11558.	11558.	882.	635158.
2005	0.	0.	0.	0.	0.	12367.	12367.	858.	636015.
2006	0.	0.	0.	0.	0.	13233.	13233.	834.	636849.
2007	0.	0.	0.	0.	0.	14159.	14159.	811.	637661.
2008	0.	0.	0.	0.	0.	15150.	15150.	789.	638450.
2009	0.	0.	0.	0.	0.	16210.	16210.	768.	639218.
2010	0.	0.	0.	0.	0.	17345.	17345.	747.	639965.

FAA EXPENSES BY SOURCE/YEAR OUTPUT OPTION 5

	----IMPLEMENTATION COSTS----------				----------RECURRING COSTS----------							SUMMARY		
YEAR	HARDWARE	RESEARCH & DEV.	TRAIN	UNASGN	O AND M	SPARES	STAFF	CHARTS	OTHER	UNASGN	NET RE-IMB.	NET CASH OUTLAY	PRES VALUE	CUMUL PRES VAL
1978	15668.	89.	654.	23750.	21464.	1109.	1273.	374.	1070.	0.	0.	65653.	59684.	59684.
1979	34969.	1240.	1544.	28561.	22967.	1186.	1362.	401.	1145.	0.	0.	93375.	77170.	136854.
1980	43787.	1327.	1652.	30561.	24574.	1269.	1458.	429.	1225.	0.	0.	106282.	79851.	216705.
1981	31465.	109.	1046.	24560.	26295.	1358.	1560.	459.	1311.	0.	0.	88161.	60215.	276920.
1982	117.	117.	1057.	19000.	28135.	1453.	1669.	491.	1403.	0.	0.	53441.	33183.	310103.
1983	125.	125.	1131.	9945.	30105.	1555.	1786.	525.	1501.	0.	0.	46797.	26416.	336519.
1984	0.	0.	0.	0.	32212.	1664.	1911.	562.	1606.	0.	0.	37954.	19477.	355995.
1985	0.	1718.	962.	7732.	34467.	1780.	2375.	734.	1890.	0.	0.	51662.	24101.	380096.
1986	0.	1838.	1030.	8273.	36879.	1905.	2894.	938.	2206.	0.	0.	55963.	23734.	403830.
1987	0.	1967.	1102.	8852.	39461.	2038.	3474.	1161.	2557.	0.	0.	60612.	23368.	427198.
1988	0.	2105.	1179.	9472.	42223.	2181.	4121.	1410.	2947.	0.	0.	65638.	23006.	450204.
1989	0.	2252.	1261.	10135.	45179.	2333.	4842.	1669.	3378.	0.	0.	71070.	22645.	472849.
1990	0.	0.	0.	0.	48341.	2497.	5181.	1807.	3615.	0.	0.	61441.	17797.	490646.
1991	0.	0.	0.	0.	51725.	2671.	5544.	1934.	3868.	0.	0.	65742.	17312.	507958.
1992	0.	0.	0.	0.	55346.	2858.	5932.	2069.	4139.	0.	0.	70344.	16840.	524798.
1993	0.	0.	0.	0.	59220.	3058.	6347.	2214.	4428.	0.	0.	75268.	16381.	541179.
1994	0.	0.	0.	0.	63366.	3273.	6791.	2369.	4738.	0.	0.	80537.	15934.	557112.
1995	0.	0.	0.	0.	67801.	3502.	7267.	2535.	5070.	0.	0.	86175.	15499.	572612.
1996	0.	0.	0.	0.	72548.	3747.	7776.	2712.	5425.	0.	0.	92207.	15077.	587688.
1997	0.	0.	0.	0.	77626.	4009.	8320.	2902.	5805.	0.	0.	98661.	14665.	602354.
1998	0.	0.	0.	0.	83060.	4290.	8902.	3105.	6211.	0.	0.	105568.	14265.	616619.
1999	0.	0.	0.	0.	88874.	4590.	9525.	3323.	6646.	0.	0.	112958.	13876.	630495.
2000	0.	0.	0.	0.	0.	0.	4551.	1896.	2370.	0.	0.	8817.	985.	631480.
2001	0.	0.	0.	0.	0.	0.	4869.	2029.	2536.	0.	0.	9435.	958.	632438.
2002	0.	0.	0.	0.	0.	0.	5210.	2171.	2714.	0.	0.	10095.	932.	633370.
2003	0.	0.	0.	0.	0.	0.	5575.	2323.	2904.	0.	0.	10802.	906.	634276.
2004	0.	0.	0.	0.	0.	0.	5965.	2486.	3107.	0.	0.	11558.	882.	635158.
2005	0.	0.	0.	0.	0.	0.	6383.	2660.	3324.	0.	0.	12367.	858.	636015.
2006	0.	0.	0.	0.	0.	0.	6830.	2846.	3557.	0.	0.	13233.	834.	636849.
2007	0.	0.	0.	0.	0.	0.	7308.	3045.	3806.	0.	0.	14159.	811.	637661.
2008	0.	0.	0.	0.	0.	0.	7819.	3258.	4073.	0.	0.	15150.	789.	638450.
2009	0.	0.	0.	0.	0.	0.	8367.	3486.	4358.	0.	0.	16210.	768.	639218.
2010	0.	0.	0.	0.	0.	0.	8952.	3730.	4663.	0.	0.	17345.	747.	639965.

NSE Pages 33 and 37: Category Definitions

The next set of NSE output describes the user data (input and results). For brevity of output, many of the listings refer only to category/subcategory indices. Pages 33 and 37 present a summary of the subcategory definitions to facilitate interpretation of the listings which follow.

USER DATA SUMMARY

CATEGORY DEFINITIONS

AVIONICS CAT.	USER GROUP	REGION COMB.			AC TYPE
1. VFR	1. AIR CARRIER	1. CONUS			1. 3-4 ENG. JET
2. LOW COST GA	2. AIR TAXI	2. CONUS	ALASKA		2. 1-2 ENG. JET
3. INT. COST GA	3. EXEC-BUS.	3. CONUS	CONUS OFF-SH		3. PISTON
4. HIGH COST GA	4. PER-OTHER	4. CONUS	OCEANIC		4. HELICOPTER
5. INT. COST GA RNAV		5. CONUS	ALASKA	OCEANIC	
6. HIGH COST GA RNAV		6. CONUS	ALASKA	CONUS OFF-SH AKA OFF-SH	
7. AC IFR LEVEL 1		7. ALASKA			
8. AC IFR LEVEL 2		8. ALASKA	AKA OFF-SH		
9. AC IFR LEVEL 3					
10. AC RNAV					

DEPREC. CODES: 1. STRT LINE 2. DECL. BALANCE 3. SUM YRS. DIGITS

USER GROUP FORECASTS

OUTPUT FORMAT: (AV. CAT,USER,REG. COMB,AC TYPE)

CATEGORY DEFINITIONS

AVIONICS CAT.	USER GROUP	REGION COMB.			AC TYPE
1. VFR	1. AIR CARRIER	1. CONUS			1. 3-4 ENG. JET
2. LOW COST GA	2. AIR TAXI	2. CONUS	ALASKA		2. 1-2 ENG. JET
3. INT. COST GA	3. EXEC-BUS.	3. CONUS	CONUS OFF-SH		3. PISTON
4. HIGH COST GA	4. PER-OTHER	4. CONUS	OCEANIC		4. HELICOPTER
5. INT. COST GA RNAV		5. CONUS	ALASKA	OCEANIC	
6. HIGH COST GA RNAV		6. CONUS	ALASKA	CONUS OFF-SH AKA OFF-SH	
7. AC IFR LEVEL 1		7. ALASKA			
8. AC IFR LEVEL 2		8. ALASKA	AKA OFF-SH		
9. AC IFR LEVEL 3					
10. AC RNAV					

NSE Pages 34-36: User Data Summary

The user data summary presents all data pertaining to each user group, except for the population forecasts, to be presented later. These data are the nominal, or pre-stored, data, changed as appropriate based on the user input.

There are 98 population groups. Each is uniquely identified by its categorization with regard to the four basic categories (avionics class, user type (type of operation), region combination and aircraft type). The user data summary contains the population group index, the subcategory identifers for each of the four categories, the current (1977) population, retrofit rate parameters (which are used to describe how quickly the group will transition), avionics age parameters (which describe the age distribution of the existing avionics, so that future purchase rates can be identified), the number of years of depreciation and type of depreciation, the tax bracket and investment tax credit percentages.

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USER DATA SUMMARY

GROUP NO.	AV. CAT	USER GP	REG. COMB	AC TYPE	CURRENT POP.	RETROFIT RATE A	RETROFIT RATE B	AVIONICS AGE PARAMETERS MEAN	AVIONICS AGE PARAMETERS VAR	DEP. YEARS	DEP. TYPE	TAX BRACKET	ITC BRACKET
1	1	4	1	3	45977.	10.0	.750	.4373	.0753	0.	0.	.00	.00
2	1	4	1	4	124.	10.0	.750	.4373	.0753	0.	0.	.00	.00
3	1	4	2	3	86.	10.0	.750	.4373	.0753	0.	0.	.00	.00
4	1	4	7	3	1552.	10.0	.750	.4373	.0753	0.	0.	.00	.00
5	1	4	8	3	5.	10.0	.750	.4373	.0753	0.	0.	.00	.00
6	2	2	1	3	3492.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
7	2	2	1	4	112.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
8	2	2	2	3	21.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
9	2	2	7	3	195.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
10	2	2	7	4	21.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
11	2	2	8	4	9.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
12	2	3	1	3	23179.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
13	2	3	1	4	162.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
14	2	3	2	3	41.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
15	2	3	3	4	7.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
16	2	3	6	4	15.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
17	2	3	7	3	564.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
18	2	3	8	3	12.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
19	2	4	1	3	21477.	10.0	.750	.4373	.0753	0.	0.	.00	.00
20	2	4	1	4	185.	10.0	.750	.4373	.0753	0.	0.	.00	.00
21	2	4	2	3	49.	10.0	.750	.4373	.0753	0.	0.	.00	.00
22	2	4	3	4	4.	10.0	.750	.4373	.0753	0.	0.	.00	.00
23	2	4	7	3	624.	10.0	.750	.4373	.0753	0.	0.	.00	.00
24	3	2	1	3	167.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
25	3	3	1	2	32.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
26	3	3	1	3	12480.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
27	3	3	1	4	30.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
28	3	3	2	3	12.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
29	3	3	7	3	171.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
30	3	3	8	3	5.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
31	3	4	1	3	9531.	10.0	.750	.4373	.0753	0.	0.	.00	.00
32	3	4	1	4	38.	10.0	.750	.4373	.0753	0.	0.	.00	.00
33	3	4	2	3	26.	10.0	.750	.4373	.0753	0.	0.	.00	.00
34	3	4	3	3	24.	10.0	.750	.4373	.0753	0.	0.	.00	.00
35	3	4	3	4	20.	10.0	.750	.4373	.0753	0.	0.	.00	.00
36	3	4	7	3	73.	10.0	.750	.4373	.0753	0.	0.	.00	.00
37	4	2	1	3	3278.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
38	4	2	2	3	6.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
39	4	2	3	3	49.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
40	4	2	7	3	30.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00

USER DATA SUMMARY

GROUP NO.	AV. CAT	USER GP	REG. COMB	AC TYPE	CURRENT POP.	RETROFIT RATE A	RETROFIT RATE B	AVIONICS AGE PARAMETERS MEAN	AVIONICS AGE PARAMETERS VAR	DEP. YEARS	DEP. TYPE	TAX BRACKET	ITC BRACKET
41	4	3	1	3	9242.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
42	4	3	1	4	75.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
43	4	3	2	3	14.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
44	4	3	3	3	75.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
45	4	3	6	4	15.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
46	4	3	7	3	88.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
47	4	4	1	3	1020.	10.0	.750	.4373	.0753	0.	0.	.00	.00
48	4	4	3	3	30.	10.0	.750	.4373	.0753	0.	0.	.00	.00
49	4	4	7	3	32.	10.0	.750	.4373	.0753	0.	0.	.00	.00
50	5	2	1	3	71.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
51	5	2	1	4	22.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
52	5	3	1	2	18.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
53	5	3	1	3	3470.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
54	5	3	1	4	28.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
55	5	3	2	3	4.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
56	5	3	3	4	6.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
57	5	3	7	3	21.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
58	5	4	1	3	4798.	10.0	.750	.4373	.0753	0.	0.	.00	.00
59	5	4	1	4	15.	10.0	.750	.4373	.0753	0.	0.	.00	.00
60	5	4	2	3	17.	10.0	.750	.4373	.0753	0.	0.	.00	.00
61	5	4	7	3	30.	10.0	.750	.4373	.0753	0.	0.	.00	.00
62	6	2	1	3	46.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
63	6	3	1	3	174.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
64	6	3	1	4	3.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
65	6	3	2	3	1.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
66	6	3	7	3	2.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
67	6	4	1	3	23.	10.0	.750	.4373	.0753	0.	0.	.00	.00
68	6	4	7	3	1.	10.0	.750	.4373	.0753	0.	0.	.00	.00
69	7	1	1	1	1031.	.0	2.250	.4373	.0753	7.	1.	52.00	10.00
70	7	1	1	2	565.	.0	2.250	.4373	.0753	7.	1.	52.00	10.00
71	7	1	1	3	298.	.0	2.250	.4373	.0753	7.	1.	52.00	10.00
72	7	1	2	1	168.	.0	2.250	.4373	.0753	7.	1.	52.00	10.00
73	7	1	4	1	248.	.0	2.250	.4373	.0753	7.	1.	52.00	10.00
74	7	1	5	1	60.	.0	2.250	.4373	.0753	7.	1.	52.00	10.00
75	7	1	7	1	9.	.0	2.250	.4373	.0753	7.	1.	52.00	10.00
76	7	1	7	2	12.	.0	2.250	.4373	.0753	7.	1.	52.00	10.00
77	7	1	7	3	44.	.0	2.250	.4373	.0753	7.	1.	52.00	10.00
78	7	2	1	2	65.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
79	7	3	1	1	71.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
80	7	3	1	2	1363.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00

USER DATA SUMMARY

GROUP NO.	AV. CAT	USER GP	REG. COMB	AC TYPE	CURRENT POP.	RETROFIT RATE A	RETROFIT RATE B	AVIONICS AGE PARAMETERS MEAN	AVIONICS AGE PARAMETERS VAR	DEP. YEARS	DEP. TYPE	TAX BRACKET	ITC BRACKET
81	7	3	4	1	74.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
82	7	3	4	2	46.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
83	7	3	4	3	31.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
84	7	4	1	2	135.	10.0	.750	.4373	.0753	0.	0.	.00	.00
85	7	4	4	1	31.	10.0	.750	.4373	.0753	0.	0.	.00	.00
86	7	4	7	1	32.	10.0	.750	.4373	.0753	0.	0.	.00	.00
87	8	1	4	1	68.	.0	2.250	.4373	.0753	7.	1.	52.00	10.00
88	8	1	5	1	15.	.0	2.250	.4373	.0753	7.	1.	52.00	10.00
89	8	3	4	1	15.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
90	8	3	4	2	46.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
91	9	1	1	1	36.	.0	2.250	.4373	.0753	7.	1.	52.00	10.00
92	9	1	4	1	60.	.0	2.250	.4373	.0753	7.	1.	52.00	10.00
93	10	2	1	2	9.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
94	10	3	1	1	4.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
95	10	3	1	2	158.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
96	10	3	2	2	16.	10.0	.750	.4373	.0753	7.	1.	52.00	10.00
97	10	4	1	1	50.	10.0	.750	.4373	.0753	0.	0.	.00	.00
98	10	4	1	2	13.	10.0	.750	.4373	.0753	0.	0.	.00	.00

NSE Pages 38-47: User Group Forecasts

Pages 38 through 47 present the complete set of user group forecasts, for each of the 98 groups. The groups are identified by group index (1-98) and subcategory indices. The number of new and retired aircraft, and net population are presented, by year.

YEAR	GROUP NEW	1(1, 4, 1, 3) RET	NET	GROUP NEW	2(1, 4, 1, 4) RET	NET	GROUP NEW	3(1, 4, 2, 3) RET	NET	GROUP NEW	4(1, 4, 7, 3) RET	NET	GROUP NEW	5(1, 4, 8, 3) RET	NET
1978	2274.	919.	47337.	8.	4.	128.	4.	2.	88.	92.	31.	1613.	0.	0.	5.
1979	2368.	947.	48758.	6.	3.	131.	6.	2.	92.	124.	33.	1704.	0.	0.	5.
1980	3043.	975.	50826.	7.	2.	136.	9.	4.	97.	124.	32.	1796.	0.	0.	5.
1981	3795.	1017.	53604.	12.	3.	145.	8.	1.	104.	156.	37.	1915.	2.	0.	7.
1982	2559.	1074.	55089.	7.	2.	150.	7.	4.	107.	127.	38.	2004.	0.	0.	7.
1983	1728.	1103.	55714.	7.	5.	152.	6.	3.	110.	99.	41.	2062.	0.	0.	7.
1984	2290.	1113.	56491.	4.	2.	154.	6.	3.	113.	99.	42.	2119.	0.	0.	7.
1985	2567.	1142.	58316.	8.	2.	160.	5.	2.	116.	129.	42.	2206.	0.	0.	7.
1986	2694.	1164.	59836.	5.	4.	161.	9.	4.	121.	130.	44.	2292.	0.	0.	7.
1987	2811.	1199.	61448.	9.	3.	167.	6.	4.	123.	131.	46.	2377.	2.	1.	8.
1988	3656.	1231.	63873.	0.	0.	161.	8.	1.	130.	196.	46.	2527.	0.	0.	8.
1989	3526.	1274.	66421.	10.	1.	170.	11.	4.	137.	183.	50.	2660.	0.	0.	8.
1990	4129.	1328.	69213.	12.	5.	177.	10.	3.	144.	202.	54.	2808.	1.	0.	9.
1991	4302.	1383.	72132.	13.	4.	186.	10.	4.	150.	213.	57.	2964.	0.	0.	9.
1992	4487.	1444.	75175.	12.	5.	193.	11.	2.	159.	225.	60.	3129.	2.	0.	11.
1993	4649.	1503.	78321.	13.	3.	203.	13.	5.	167.	235.	63.	3301.	0.	0.	11.
1994	4877.	1567.	81631.	12.	4.	211.	12.	3.	176.	250.	67.	3484.	1.	1.	11.
1995	5105.	1633.	85103.	14.	4.	221.	14.	4.	186.	260.	69.	3675.	1.	0.	12.
1996	5359.	1702.	88760.	14.	3.	232.	12.	3.	195.	277.	73.	3879.	0.	0.	12.
1997	5490.	1777.	92473.	14.	5.	241.	14.	5.	204.	289.	77.	4091.	1.	0.	13.
1998	5877.	1851.	96496.	16.	3.	254.	17.	7.	214.	309.	81.	4319.	2.	0.	15.
1999	6052.	1933.	100618.	16.	5.	265.	17.	5.	226.	326.	88.	4557.	0.	0.	15.
2000	6052.	1933.	104737.	16.	5.	276.	17.	5.	238.	326.	88.	4795.	0.	0.	15.
2001	0.	0.	104737.	0.	0.	276.	0.	0.	238.	0.	0.	4795.	0.	0.	15.
2002	0.	0.	104737.	0.	0.	276.	0.	0.	238.	0.	0.	4795.	0.	0.	15.

YEAR	GROUP NEW	6(2, 2, 1, 3) RET	NET	GROUP NEW	7(2, 2, 1, 4) RET	NET	GROUP NEW	8(2, 2, 2, 3) RET	NET	GROUP NEW	9(2, 2, 7, 3) RET	NET	GROUP NEW	10(2, 2, 7, 4) RET	NET
1978	186.	70.	3608.	7.	2.	117.	2.	1.	22.	12.	4.	203.	1.	0.	22.
1979	192.	73.	3727.	4.	2.	119.	1.	0.	23.	15.	4.	214.	1.	0.	23.
1980	248.	74.	3901.	8.	3.	124.	2.	1.	24.	16.	4.	226.	2.	0.	25.
1981	304.	77.	4128.	9.	2.	131.	2.	0.	26.	18.	4.	240.	2.	1.	26.
1982	210.	85.	4259.	8.	3.	136.	1.	0.	27.	16.	5.	251.	1.	0.	27.
1983	148.	84.	4323.	4.	2.	138.	1.	1.	27.	13.	5.	259.	2.	0.	29.
1984	194.	89.	4428.	5.	3.	140.	1.	0.	28.	12.	5.	266.	1.	1.	29.
1985	216.	88.	4556.	8.	3.	145.	2.	1.	29.	17.	6.	277.	2.	0.	31.
1986	251.	91.	4696.	5.	3.	147.	1.	0.	30.	16.	5.	288.	1.	0.	32.
1987	237.	95.	4840.	8.	3.	152.	1.	1.	30.	17.	6.	299.	1.	0.	33.
1988	391.	100.	5131.	0.	5.	147.	3.	0.	33.	24.	6.	317.	1.	1.	33.
1989	328.	102.	5357.	10.	3.	154.	3.	2.	34.	23.	6.	334.	3.	1.	35.
1990	352.	106.	5603.	10.	3.	161.	2.	0.	36.	26.	7.	353.	3.	1.	37.
1991	373.	113.	5863.	10.	3.	168.	2.	1.	37.	27.	7.	373.	3.	1.	39.
1992	386.	115.	6134.	11.	3.	176.	4.	2.	39.	28.	8.	393.	4.	1.	42.
1993	404.	122.	6416.	12.	4.	184.	2.	0.	41.	30.	8.	415.	4.	1.	45.
1994	425.	128.	6713.	12.	4.	192.	2.	1.	42.	31.	8.	438.	3.	1.	47.
1995	448.	135.	7022.	13.	4.	201.	4.	1.	45.	32.	8.	462.	4.	1.	50.
1996	458.	141.	7339.	13.	4.	210.	3.	1.	47.	36.	10.	488.	4.	1.	53.
1997	477.	144.	7662.	12.	4.	218.	3.	0.	50.	35.	9.	514.	4.	1.	56.
1998	515.	155.	8043.	16.	4.	230.	5.	2.	53.	40.	11.	543.	5.	1.	60.
1999	532.	162.	8413.	15.	5.	240.	3.	1.	55.	40.	10.	573.	6.	2.	64.
2000	532.	162.	8783.	15.	5.	250.	3.	1.	57.	40.	10.	603.	6.	2.	68.
2001	0.	0.	8783.	0.	0.	250.	0.	0.	57.	0.	0.	603.	0.	0.	68.
2002	0.	0.	8783.	0.	0.	250.	0.	0.	57.	0.	0.	603.	0.	0.	68.

YEAR	GROUP 11(2, 2, 6, 4) NEW	RET	NET	GROUP 12(2, 3, 4, 3) NEW	RET	NET	GROUP 13(2, 3, 1, 4) NEW	RET	NET	GROUP 14(2, 3, 2, 3) NEW	RET	NET	GROUP 15(2, 3, 3, 4) NEW	RET	NET
1978	1.	1.	9.	1177.	465.	23891.	12.	4.	170.	2.	1.	42.	0.	0.	7.
1979	1.	0.	10.	1231.	476.	24646.	7.	4.	173.	3.	1.	44.	0.	0.	7.
1980	1.	1.	10.	1572.	493.	25725.	9.	2.	180.	3.	1.	46.	1.	0.	8.
1981	1.	0.	11.	1465.	518.	27172.	14.	4.	190.	5.	1.	50.	0.	0.	8.
1982	1.	0.	12.	1335.	541.	27466.	12.	4.	198.	3.	1.	52.	2.	1.	9.
1983	1.	1.	12.	920.	561.	28325.	8.	5.	201.	1.	0.	53.	0.	0.	9.
1984	1.	0.	13.	1205.	567.	28963.	6.	3.	204.	2.	1.	54.	0.	0.	9.
1985	1.	1.	13.	1346.	577.	29732.	12.	4.	212.	3.	1.	56.	1.	0.	10.
1986	1.	1.	13.	1423.	596.	30559.	6.	4.	214.	2.	1.	57.	0.	0.	10.
1987	1.	0.	14.	1480.	611.	31428.	11.	4.	221.	4.	2.	59.	0.	0.	10.
1988	0.	0.	14.	2136.	630.	32934.	0.	7.	214.	5.	1.	63.	1.	1.	10.
1989	1.	0.	15.	2022.	659.	34297.	14.	4.	224.	5.	2.	66.	2.	0.	12.
1990	1.	0.	16.	2182.	683.	35796.	15.	5.	234.	4.	1.	69.	1.	0.	13.
1991	1.	0.	17.	2291.	721.	37366.	15.	4.	245.	4.	1.	72.	0.	0.	13.
1992	2.	1.	18.	2382.	744.	39004.	16.	5.	256.	7.	2.	77.	2.	1.	14.
1993	1.	0.	19.	2477.	780.	40701.	17.	6.	267.	4.	1.	80.	1.	0.	15.
1994	1.	0.	20.	2607.	818.	42490.	16.	4.	279.	6.	2.	84.	1.	0.	16.
1995	2.	0.	22.	2722.	850.	44362.	19.	6.	292.	6.	1.	89.	1.	0.	17.
1996	2.	1.	23.	2858.	890.	46330.	20.	6.	306.	6.	2.	93.	2.	1.	18.
1997	1.	0.	24.	2933.	926.	48337.	19.	7.	318.	6.	1.	98.	0.	0.	18.
1998	2.	1.	25.	3138.	965.	50510.	23.	6.	335.	8.	3.	103.	2.	0.	20.
1999	2.	0.	27.	3242.	1012.	52740.	21.	6.	350.	7.	2.	108.	2.	1.	21.
2000	2.	0.	29.	3242.	1012.	54970.	21.	6.	365.	7.	2.	113.	2.	1.	22.
2001	0.	0.	29.	0.	0.	54970.	0.	0.	365.	0.	0.	113.	0.	0.	22.
2002	0.	0.	29.	0.	0.	54970.	0.	0.	365.	0.	0.	113.	0.	0.	22.

YEAR	GROUP 16(2, 3, 6, 4) NEW	RET	NET	GROUP 17(2, 3, 7, 3) NEW	RET	NET	GROUP 18(2, 3, 8, 3) NEW	RET	NET	GROUP 19(2, 4, 1, 3) NEW	RET	NET	GROUP 20(2, 4, 1, 4) NEW	RET	NET
1978	2.	1.	16.	34.	11.	587.	0.	0.	12.	1098.	431.	22144.	12.	2.	195.
1979	0.	0.	16.	46.	12.	621.	1.	0.	13.	1145.	442.	22847.	8.	5.	198.
1980	1.	0.	17.	44.	12.	653.	1.	1.	13.	1465.	454.	23858.	12.	3.	207.
1981	2.	1.	18.	57.	13.	697.	3.	0.	16.	1826.	477.	25207.	16.	5.	218.
1982	1.	0.	19.	46.	14.	729.	1.	0.	17.	1249.	502.	25954.	12.	4.	226.
1983	1.	0.	20.	35.	15.	749.	0.	0.	17.	859.	519.	26294.	10.	4.	232.
1984	2.	1.	21.	36.	14.	771.	1.	1.	17.	1124.	525.	26893.	7.	4.	235.
1985	1.	0.	22.	47.	16.	802.	1.	0.	18.	1261.	535.	27619.	13.	6.	249.
1986	1.	1.	22.	45.	16.	832.	1.	0.	19.	1365.	556.	28394.	3.	6.	[illegible]
1987	1.	0.	23.	47.	16.	863.	0.	0.	19.	1382.	562.	29218.	13.	6.	253.
1988	1.	0.	24.	70.	16.	917.	2.	1.	20.	2014.	584.	30648.	0.	7.	246.
1989	2.	1.	25.	68.	18.	967.	1.	0.	21.	1895.	613.	31930.	15.	5.	256.
1990	2.	0.	27.	73.	20.	1020.	1.	0.	22.	2045.	638.	33337.	17.	5.	268.
1991	2.	1.	28.	76.	20.	1078.	2.	1.	23.	2138.	667.	34808.	17.	4.	281.
1992	2.	0.	30.	82.	23.	1137.	3.	1.	25.	2239.	699.	36348.	17.	5.	293.
1993	3.	1.	32.	85.	23.	1199.	1.	0.	26.	2318.	723.	37943.	20.	7.	306.
1994	3.	1.	34.	90.	23.	1266.	3.	1.	28.	2441.	761.	39623.	19.	5.	320.
1995	2.	0.	36.	96.	26.	1336.	1.	0.	29.	2544.	793.	41374.	22.	7.	335.
1996	3.	1.	38.	102.	27.	1411.	2.	1.	30.	2673.	827.	43220.	23.	8.	350.
1997	3.	1.	40.	103.	28.	1486.	2.	0.	32.	2746.	862.	45104.	23.	8.	365.
1998	3.	1.	42.	113.	24.	1570.	4.	1.	35.	2944.	900.	47148.	24.	8.	383.
1999	4.	1.	45.	118.	32.	1656.	2.	0.	37.	3041.	942.	49247.	26.	8.	401.
2000	4.	1.	48.	118.	32.	1742.	2.	0.	39.	3041.	942.	51346.	26.	8.	419.
2001	0.	0.	48.	0.	0.	1742.	0.	0.	39.	0.	0.	51346.	0.	0.	419.
2002	0.	0.	48.	0.	0.	1742.	0.	0.	39.	0.	0.	51346.	0.	0.	419.

YEAR	GROUP 21(2, 4, 2, 3) NEW	RET	NET	GROUP 22(2, 4, 3, 4) NEW	RET	NET	GROUP 23(2, 4, 7, 3) NEW	RET	NET	GROUP 24(3, 2, 1, 3) NEW	RET	NET	GROUP 25(3, 3, 1, 2) NEW	RET	NET
1978	2.	1.	50.	0.	0.	4.	39.	14.	649.	11.	4.	174.	3.	0.	35.
1979	3.	0.	53.	1.	0.	5.	51.	11.	689.	9.	3.	180.	4.	1.	38.
1980	3.	0.	56.	0.	0.	5.	55.	15.	729.	13.	4.	189.	4.	0.	42.
1981	5.	2.	59.	0.	0.	5.	67.	14.	792.	17.	4.	202.	5.	1.	46.
1982	3.	0.	62.	0.	0.	5.	56.	17.	821.	12.	4.	210.	6.	1.	51.
1983	2.	0.	64.	1.	0.	6.	42.	15.	848.	7.	4.	213.	3.	0.	54.
1984	3.	1.	66.	0.	0.	6.	45.	17.	876.	13.	5.	221.	4.	1.	57.
1985	3.	1.	68.	0.	0.	6.	58.	17.	917.	12.	5.	228.	6.	1.	62.
1986	5.	1.	72.	1.	1.	6.	58.	18.	957.	14.	5.	237.	8.	1.	69.
1987	3.	0.	75.	1.	0.	7.	63.	20.	1000.	12.	4.	245.	5.	1.	73.
1988	7.	2.	80.	0.	0.	7.	94.	21.	1073.	30.	5.	270.	10.	1.	82.
1989	5.	1.	84.	0.	0.	7.	85.	21.	1157.	20.	7.	283.	8.	1.	89.
1990	7.	2.	89.	0.	0.	7.	89.	22.	1204.	21.	5.	299.	9.	3.	95.
1991	5.	0.	94.	1.	0.	8.	97.	24.	1277.	22.	6.	315.	9.	1.	103.
1992	6.	2.	98.	0.	0.	8.	102.	25.	1354.	22.	6.	331.	10.	3.	110.
1993	8.	2.	104.	2.	1.	9.	106.	25.	1435.	25.	6.	350.	9.	1.	118.
1994	7.	2.	109.	0.	0.	9.	115.	29.	1521.	26.	8.	368.	12.	3.	127.
1995	10.	3.	116.	1.	0.	10.	120.	31.	1610.	26.	7.	387.	10.	3.	134.
1996	7.	1.	122.	1.	0.	11.	128.	32.	1706.	27.	7.	407.	12.	3.	143.
1997	9.	1.	130.	0.	0.	11.	134.	36.	1804.	30.	8.	429.	13.	3.	153.
1998	9.	1.	138.	2.	1.	12.	144.	36.	1912.	30.	8.	451.	14.	4.	163.
1999	9.	3.	144.	1.	0.	13.	149.	37.	2024.	33.	9.	475.	13.	3.	173.
2000	9.	3.	150.	1.	0.	14.	149.	37.	2136.	33.	9.	499.	13.	3.	183.
2001	0.	0.	150.	0.	0.	14.	0.	0.	2136.	0.	0.	499.	0.	0.	183.
2002	0.	0.	150.	0.	0.	14.	0.	0.	2136.	0.	0.	499.	0.	0.	183.

YEAR	GROUP 26(3, 3, 1, 3) NEW	RET	NET	GROUP 27(3, 3, 1, 4) NEW	RET	NET	GROUP 28(3, 3, 2, 3) NEW	RET	NET	GROUP 29(3, 3, 7, 3) NEW	RET	NET	GROUP 30(3, 3, 8, 3) NEW	RET	NET
1978	691.	251.	12920.	2.	0.	36.	0.	0.	12.	13.	6.	178.	0.	0.	5.
1979	731.	259.	13392.	2.	1.	37.	1.	0.	13.	15.	2.	191.	0.	0.	5.
1980	926.	265.	14053.	2.	0.	39.	2.	0.	15.	15.	4.	202.	0.	0.	5.
1981	1147.	284.	14916.	4.	1.	42.	1.	0.	16.	21.	6.	217.	2.	0.	7.
1982	818.	297.	15457.	2.	0.	44.	1.	0.	17.	14.	2.	224.	0.	0.	7.
1983	585.	308.	15714.	2.	2.	44.	1.	1.	17.	13.	5.	237.	0.	0.	7.
1984	743.	313.	16144.	1.	0.	45.	2.	2.	17.	14.	5.	246.	0.	0.	7.
1985	835.	324.	16655.	3.	2.	46.	0.	0.	17.	15.	4.	257.	0.	0.	7.
1986	897.	334.	17218.	0.	0.	46.	3.	2.	18.	18.	5.	270.	0.	0.	7.
1987	923.	341.	17800.	3.	2.	47.	2.	0.	20.	14.	3.	281.	0.	0.	7.
1988	1697.	356.	19141.	0.	1.	46.	3.	2.	21.	35.	7.	309.	2.	0.	9.
1989	1253.	386.	20034.	3.	1.	48.	3.	2.	22.	22.	6.	325.	0.	0.	9.
1990	1360.	401.	21017.	4.	1.	51.	2.	0.	24.	27.	6.	346.	0.	0.	9.
1991	1452.	420.	22049.	2.	0.	53.	1.	0.	25.	29.	7.	368.	0.	0.	9.
1992	1527.	441.	23135.	4.	1.	56.	3.	2.	26.	31.	10.	389.	2.	0.	11.
1993	1595.	465.	24265.	3.	2.	57.	3.	2.	27.	31.	6.	414.	0.	0.	11.
1994	1679.	487.	25457.	3.	0.	60.	3.	1.	29.	31.	7.	438.	2.	0.	13.
1995	1740.	508.	26689.	4.	2.	62.	4.	2.	31.	33.	7.	464.	0.	0.	13.
1996	1837.	533.	27993.	5.	2.	65.	3.	0.	34.	40.	12.	492.	2.	0.	15.
1997	1900.	561.	29332.	3.	1.	67.	3.	2.	35.	38.	9.	521.	1.	0.	16.
1998	2039.	589.	30781.	5.	2.	70.	4.	4.	35.	43.	12.	552.	1.	0.	17.
1999	2111.	614.	32278.	5.	2.	73.	3.	0.	38.	45.	11.	586.	0.	0.	17.
2000	2111.	614.	33775.	5.	2.	76.	3.	0.	41.	45.	11.	620.	0.	0.	17.
2001	0.	0.	33775.	0.	0.	76.	0.	0.	41.	0.	0.	620.	0.	0.	17.
2002	0.	0.	33775.	0.	0.	76.	0.	0.	41.	0.	0.	620.	0.	0.	17.

YEAR	GROUP 31(3, 4, 1, 3) NEW	RET	NET	GROUP 32(3, 4, 1, 4) NEW	RET	NET	GROUP 33(3, 4, 2, 3) NEW	RET	NET	GROUP 34(3, 4, 3, 3) NEW	RET	NET	GROUP 35(3, 4, 3, 4) NEW	RET	NET
1978	508.	188.	9851.	1.	0.	39.	0.	0.	26.	0.	0.	24.	2.	1.	21.
1979	530.	198.	10189.	1.	1.	39.	0.	0.	26.	2.	1.	25.	1.	0.	22.
1980	557.	205.	10671.	3.	1.	41.	4.	1.	29.	1.	0.	26.	2.	1.	23.
1981	583.	213.	11301.	4.	1.	44.	3.	1.	31.	3.	1.	28.	1.	0.	24.
1982	599.	227.	11673.	2.	0.	46.	2.	0.	33.	0.	0.	28.	1.	0.	25.
1983	616.	232.	11857.	1.	1.	46.	1.	0.	34.	2.	1.	29.	2.	1.	26.
1984	540.	240.	12157.	0.	0.	46.	2.	1.	35.	0.	0.	29.	1.	0.	27.
1985	604.	242.	12519.	5.	2.	49.	0.	0.	35.	2.	1.	30.	2.	1.	28.
1986	645.	250.	12914.	1.	0.	50.	4.	1.	38.	2.	1.	31.	1.	0.	29.
1987	667.	257.	13324.	3.	1.	52.	2.	1.	39.	1.	0.	32.	2.	1.	30.
1988	1131.	265.	14190.	0.	1.	51.	3.	0.	42.	2.	1.	33.	1.	0.	31.
1989	920.	287.	14823.	4.	2.	53.	2.	1.	43.	2.	1.	34.	2.	1.	32.
1990	945.	298.	15520.	4.	1.	56.	4.	1.	46.	2.	0.	36.	3.	1.	34.
1991	1034.	309.	16250.	3.	0.	59.	3.	1.	48.	2.	1.	37.	2.	0.	36.
1992	1091.	328.	17017.	4.	1.	62.	3.	0.	51.	3.	1.	39.	3.	1.	38.
1993	1138.	341.	17814.	6.	2.	66.	4.	1.	54.	1.	0.	40.	3.	1.	40.
1994	1197.	355.	18656.	3.	0.	69.	4.	1.	57.	3.	1.	42.	2.	0.	42.
1995	1246.	376.	19520.	4.	1.	72.	3.	1.	59.	3.	1.	44.	4.	1.	45.
1996	1316.	392.	20450.	6.	2.	76.	3.	0.	62.	3.	1.	46.	5.	1.	49.
1997	1348.	407.	21391.	4.	1.	79.	4.	1.	65.	3.	1.	48.	4.	1.	52.
1998	1451.	427.	22415.	4.	0.	83.	6.	2.	69.	3.	1.	50.	4.	1.	55.
1999	1501.	451.	23465.	6.	2.	87.	4.	1.	72.	3.	1.	52.	4.	1.	58.
2000	1501.	451.	24515.	6.	2.	91.	4.	1.	75.	3.	1.	54.	4.	1.	61.
2001	0.	0.	24515.	0.	0.	91.	0.	0.	75.	0.	0.	54.	0.	0.	61.
2002	0.	0.	24515.	0.	0.	91.	0.	0.	75.	0.	0.	54.	0.	0.	61.

YEAR	GROUP 36(3, 4, 7, 3) NEW	RET	NET	GROUP 37(4, 2, 1, 3) NEW	RET	NET	GROUP 38(4, 2, 2, 3) NEW	RET	NET	GROUP 39(4, 2, 3, 3) NEW	RET	NET	GROUP 40(4, 2, 7, 3) NEW	RET	NET
1978	6.	2.	77.	214.	65.	3427.	0.	0.	6.	2.	0.	51.	3.	1.	32.
1979	3.	0.	80.	239.	66.	3600.	0.	0.	6.	5.	2.	54.	1.	0.	33.
1980	7.	2.	85.	302.	73.	3829.	1.	0.	7.	4.	0.	58.	3.	1.	35.
1981	9.	2.	92.	365.	76.	4118.	0.	0.	7.	8.	2.	64.	4.	1.	38.
1982	3.	0.	95.	288.	83.	4323.	1.	0.	8.	5.	1.	68.	1.	0.	39.
1983	5.	2.	98.	216.	85.	4454.	1.	1.	8.	5.	2.	71.	2.	1.	40.
1984	7.	3.	102.	269.	88.	4635.	0.	0.	8.	3.	0.	74.	3.	1.	42.
1985	5.	2.	105.	304.	95.	4844.	1.	0.	9.	7.	2.	79.	2.	1.	43.
1986	7.	2.	110.	331.	96.	5079.	0.	0.	9.	7.	2.	84.	3.	1.	45.
1987	7.	2.	115.	348.	101.	5326.	1.	0.	10.	7.	1.	90.	3.	1.	47.
1988	8.	1.	122.	737.	107.	5956.	1.	0.	11.	9.	2.	97.	3.	0.	50.
1989	7.	2.	127.	461.	119.	6298.	2.	1.	12.	9.	3.	103.	3.	1.	52.
1990	11.	4.	134.	503.	126.	6673.	1.	0.	13.	8.	1.	110.	5.	2.	55.
1991	10.	3.	141.	531.	132.	7072.	1.	0.	14.	9.	3.	116.	4.	1.	58.
1992	10.	3.	148.	562.	143.	7491.	2.	0.	16.	10.	2.	124.	4.	1.	61.
1993	12.	2.	158.	590.	149.	7932.	2.	1.	17.	10.	2.	132.	5.	1.	65.
1994	10.	3.	165.	633.	161.	8404.	1.	0.	18.	11.	3.	140.	4.	1.	68.
1995	14.	5.	174.	639.	167.	8876.	1.	0.	19.	12.	3.	149.	6.	2.	72.
1996	12.	3.	183.	683.	179.	9380.	2.	1.	20.	12.	3.	158.	5.	1.	76.
1997	14.	5.	192.	711.	188.	9903.	1.	0.	21.	13.	3.	168.	6.	2.	80.
1998	15.	3.	204.	763.	196.	10470.	2.	1.	22.	13.	3.	178.	6.	1.	85.
1999	15.	5.	214.	801.	210.	11061.	2.	0.	24.	14.	4.	188.	6.	2.	89.
2000	15.	5.	224.	801.	210.	11652.	2.	0.	26.	14.	4.	198.	6.	2.	93.
2001	0.	0.	224.	0.	0.	11652.	0.	0.	26.	0.	0.	198.	0.	0.	93.
2002	0.	0.	224.	0.	0.	11652.	0.	0.	26.	0.	0.	198.	0.	0.	93.

YEAR	GROUP 41(4, 3, 1, 3) NEW	RET	NET	GROUP 42(4, 3, 1, 4) NEW	RET	NET	GROUP 43(4, 3, 2, 3) NEW	RET	NET	GROUP 44(4, 3, 3, 3) NEW	RET	NET	GROUP 45(4, 3, 6, 4) NEW	RET	NET
1978	835.	183.	9692.	6.	2.	79.	1.	0.	15.	4.	1.	76.	2.	1.	16.
1979	729.	193.	10228.	3.	2.	80.	2.	0.	17.	8.	2.	84.	0.	0.	16.
1980	917.	203.	10942.	4.	1.	83.	1.	0.	18.	8.	1.	91.	1.	0.	17.
1981	1117.	219.	11840.	7.	2.	88.	3.	1.	20.	13.	3.	101.	2.	1.	18.
1982	862.	236.	12486.	6.	2.	92.	1.	0.	21.	7.	1.	107.	1.	0.	19.
1983	685.	248.	12923.	3.	2.	93.	2.	0.	23.	9.	3.	113.	1.	0.	20.
1984	849.	259.	13513.	4.	2.	95.	3.	0.	26.	7.	1.	119.	2.	1.	21.
1985	970.	271.	14212.	5.	1.	99.	4.	1.	29.	12.	3.	128.	1.	0.	22.
1986	1048.	283.	14977.	3.	2.	100.	1.	0.	30.	12.	3.	137.	1.	1.	22.
1987	1113.	297.	15743.	6.	2.	104.	4.	1.	33.	12.	2.	147.	1.	0.	23.
1988	2240.	316.	17717.	9.	4.	100.	6.	1.	38.	17.	4.	160.	1.	0.	24.
1989	1825.	351.	18791.	7.	2.	105.	3.	0.	41.	14.	3.	171.	2.	1.	25.
1990	1554.	377.	19868.	6.	2.	109.	4.	1.	44.	16.	3.	184.	2.	0.	27.
1991	1669.	398.	21219.	7.	2.	114.	3.	0.	47.	16.	4.	196.	2.	1.	28.
1992	1744.	422.	22541.	9.	3.	120.	7.	2.	52.	18.	4.	210.	2.	0.	30.
1993	1846.	448.	23939.	7.	2.	125.	4.	0.	56.	16.	3.	223.	3.	1.	32.
1994	1963.	478.	25424.	10.	3.	132.	6.	1.	61.	21.	5.	239.	3.	1.	34.
1995	1999.	509.	26914.	7.	2.	137.	6.	1.	66.	20.	5.	254.	2.	0.	36.
1996	2123.	535.	28502.	10.	3.	144.	6.	2.	70.	21.	5.	270.	3.	1.	38.
1997	2214.	569.	30147.	8.	3.	149.	5.	0.	75.	23.	6.	287.	3.	1.	40.
1998	2386.	599.	31934.	12.	3.	158.	8.	1.	82.	23.	5.	305.	3.	1.	42.
1999	2499.	638.	33795.	10.	3.	165.	7.	2.	87.	26.	7.	324.	4.	1.	45.
2000	2499.	638.	35656.	10.	3.	172.	7.	2.	92.	26.	7.	343.	4.	1.	48.
2001	0.	0.	35656.	0.	0.	172.	0.	0.	92.	0.	0.	343.	0.	0.	48.
2002	0.	0.	35656.	0.	0.	172.	0.	0.	92.	0.	0.	343.	0.	0.	48.

YEAR	GROUP 46(4, 3, 7, 3) NEW	RET	NET	GROUP 47(4, 4, 1, 3) NEW	RET	NET	GROUP 48(4, 4, 3, 3) NEW	RET	NET	GROUP 49(4, 4, 7, 3) NEW	RET	NET	GROUP 50(5, 2, 1, 3) NEW	RET	NET
1978	7.	2.	93.	74.	21.	1073.	2.	1.	31.	3.	1.	34.	4.	2.	73.
1979	10.	2.	101.	93.	21.	1145.	2.	0.	33.	4.	0.	38.	4.	1.	76.
1980	12.	2.	111.	118.	22.	1241.	3.	1.	35.	6.	1.	43.	6.	2.	80.
1981	14.	2.	123.	148.	28.	1361.	3.	1.	37.	7.	1.	49.	6.	1.	85.
1982	12.	3.	132.	118.	25.	1454.	2.	0.	39.	6.	1.	54.	4.	1.	88.
1983	10.	2.	140.	97.	30.	1521.	2.	1.	40.	5.	1.	58.	4.	2.	90.
1984	11.	2.	149.	114.	27.	1608.	3.	1.	42.	6.	1.	63.	4.	1.	93.
1985	16.	4.	161.	139.	33.	1714.	2.	1.	43.	9.	2.	70.	4.	2.	95.
1986	13.	2.	172.	109.	33.	1827.	3.	1.	45.	7.	1.	76.	5.	2.	98.
1987	17.	3.	186.	161.	35.	1953.	2.	0.	47.	10.	2.	84.	5.	1.	102.
1988	30.	4.	212.	269.	42.	2180.	8.	1.	54.	11.	1.	94.	10.	2.	110.
1989	20.	3.	229.	191.	42.	2329.	4.	1.	57.	11.	2.	103.	6.	2.	114.
1990	23.	5.	247.	207.	49.	2487.	5.	2.	60.	11.	2.	112.	8.	3.	119.
1991	25.	6.	266.	219.	49.	2657.	5.	1.	64.	12.	3.	121.	8.	2.	125.
1992	20.	4.	282.	233.	51.	2839.	4.	1.	67.	13.	2.	132.	8.	2.	131.
1993	20.	6.	308.	244.	56.	3027.	5.	1.	71.	13.	3.	142.	8.	2.	137.
1994	31.	6.	333.	267.	61.	3233.	6.	2.	75.	15.	3.	154.	10.	4.	143.
1995	31.	7.	357.	266.	65.	3434.	6.	1.	80.	15.	3.	166.	9.	2.	150.
1996	33.	6.	384.	282.	67.	3649.	6.	2.	84.	16.	3.	179.	11.	4.	157.
1997	36.	9.	411.	302.	74.	3877.	7.	2.	89.	18.	4.	193.	11.	4.	164.
1998	38.	8.	441.	317.	74.	4120.	6.	1.	94.	19.	4.	205.	11.	3.	172.
1999	41.	8.	474.	339.	85.	4374.	7.	2.	99.	20.	4.	224.	11.	4.	179.
2000	41.	8.	507.	339.	85.	4628.	7.	2.	104.	20.	4.	240.	11.	4.	186.
2001	0.	0.	507.	0.	0.	4628.	0.	0.	104.	0.	0.	240.	0.	0.	186.
2002	0.	0.	507.	0.	0.	4628.	0.	0.	104.	0.	0.	240.	0.	0.	186.

YEAR	GROUP 51(5, 2, 1, 4)			GROUP 52(5, 3, 1, 2)			GROUP 53(5, 3, 1, 3)			GROUP 54(5, 3, 1, 4)			GROUP 55(5, 3, 2, 3)		
	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET
1978	1.	0.	23.	1.	0.	19.	186.	69.	3587.	2.	1.	29.	0.	0.	4.
1979	2.	1.	24.	2.	1.	20.	197.	74.	3710.	1.	1.	29.	0.	0.	4.
1980	1.	0.	25.	2.	0.	22.	247.	73.	3884.	2.	1.	30.	0.	0.	4.
1981	2.	1.	26.	3.	1.	24.	310.	79.	4115.	2.	1.	31.	1.	0.	5.
1982	1.	0.	27.	4.	1.	27.	219.	81.	4253.	1.	0.	32.	0.	0.	5.
1983	2.	1.	28.	1.	0.	28.	151.	86.	4318.	2.	1.	33.	0.	0.	5.
1984	0.	0.	28.	2.	1.	29.	198.	86.	4430.	0.	0.	33.	0.	0.	5.
1985	2.	1.	29.	4.	1.	32.	221.	89.	4562.	3.	1.	35.	0.	0.	5.
1986	0.	0.	29.	4.	1.	35.	236.	92.	4706.	1.	0.	36.	0.	0.	5.
1987	2.	1.	30.	3.	1.	37.	245.	95.	4856.	2.	1.	37.	0.	0.	5.
1988	0.	1.	29.	6.	1.	42.	408.	97.	5167.	0.	1.	36.	1.	0.	6.
1989	2.	0.	31.	4.	1.	45.	336.	105.	5398.	3.	1.	38.	1.	1.	6.
1990	2.	1.	32.	5.	1.	49.	361.	108.	5651.	2.	1.	39.	0.	0.	6.
1991	2.	0.	34.	5.	1.	53.	380.	114.	5917.	3.	1.	41.	0.	0.	6.
1992	2.	1.	35.	6.	1.	58.	399.	118.	6198.	2.	1.	42.	1.	0.	7.
1993	3.	1.	37.	5.	1.	62.	414.	124.	6488.	4.	1.	45.	0.	0.	7.
1994	1.	0.	38.	6.	1.	67.	437.	130.	6795.	2.	0.	47.	0.	0.	7.
1995	3.	1.	40.	6.	1.	72.	455.	137.	7113.	4.	1.	50.	1.	0.	8.
1996	3.	1.	42.	6.	1.	77.	477.	142.	7448.	4.	1.	53.	0.	0.	8.
1997	3.	1.	44.	7.	1.	83.	493.	149.	7792.	3.	1.	55.	0.	0.	8.
1998	3.	1.	46.	8.	2.	89.	528.	156.	8164.	4.	1.	58.	3.	1.	10.
1999	3.	1.	48.	7.	1.	95.	547.	164.	8547.	4.	1.	61.	0.	0.	10.
2000	3.	1.	50.	7.	1.	101.	547.	164.	8930.	4.	1.	64.	0.	0.	10.
2001	0.	0.	50.	0.	0.	101.	0.	0.	8930.	0.	0.	64.	0.	0.	10.
2002	0.	0.	50.	0.	0.	101.	0.	0.	8930.	0.	0.	64.	0.	0.	10.

YEAR	GROUP 56(5, 3, 3, 4)			GROUP 57(5, 3, 7, 3)			GROUP 58(5, 4, 1, 3)			GROUP 59(5, 4, 1, 4)			GROUP 60(5, 4, 2, 3)		
	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET
1978	0.	0.	6.	1.	1.	21.	246.	95.	4949.	1.	0.	16.	1.	0.	18.
1979	1.	0.	7.	1.	0.	22.	259.	100.	5108.	1.	1.	16.	1.	0.	19.
1980	0.	0.	7.	2.	1.	23.	331.	102.	5337.	1.	0.	17.	1.	1.	19.
1981	0.	0.	7.	2.	1.	24.	411.	106.	5642.	2.	1.	18.	2.	0.	21.
1982	1.	0.	8.	1.	0.	25.	285.	113.	5814.	1.	0.	19.	1.	1.	21.
1983	1.	1.	8.	1.	1.	25.	193.	116.	5891.	1.	1.	19.	0.	0.	21.
1984	0.	0.	8.	1.	1.	25.	257.	119.	6029.	0.	0.	19.	1.	1.	21.
1985	1.	0.	9.	1.	1.	25.	286.	120.	6195.	1.	1.	19.	1.	0.	22.
1986	0.	0.	9.	2.	1.	26.	301.	123.	6373.	1.	0.	20.	1.	1.	22.
1987	0.	0.	9.	1.	0.	27.	316.	128.	6561.	1.	1.	20.	1.	1.	22.
1988	1.	0.	10.	3.	1.	29.	470.	130.	6901.	0.	1.	19.	1.	0.	23.
1989	1.	1.	10.	2.	1.	30.	432.	139.	7194.	1.	1.	19.	3.	1.	25.
1990	1.	0.	11.	3.	1.	32.	465.	144.	7515.	1.	1.	19.	2.	1.	26.
1991	0.	0.	11.	3.	1.	34.	485.	151.	7849.	1.	0.	20.	1.	0.	27.
1992	1.	0.	12.	4.	1.	37.	509.	156.	8202.	1.	1.	20.	3.	1.	29.
1993	2.	1.	13.	4.	1.	40.	528.	164.	8566.	2.	1.	21.	2.	1.	30.
1994	0.	0.	13.	3.	1.	42.	556.	173.	8949.	1.	0.	22.	2.	1.	31.
1995	1.	0.	14.	4.	1.	45.	579.	179.	9349.	1.	1.	22.	3.	1.	33.
1996	1.	0.	15.	4.	1.	48.	610.	187.	9772.	2.	1.	23.	2.	1.	34.
1997	2.	1.	16.	4.	1.	51.	625.	194.	10203.	2.	1.	24.	2.	0.	36.
1998	1.	0.	17.	4.	1.	54.	672.	205.	10670.	1.	0.	25.	4.	2.	38.
1999	1.	0.	18.	5.	1.	58.	693.	214.	11149.	2.	1.	26.	3.	1.	40.
2000	1.	0.	19.	5.	1.	62.	693.	214.	11628.	2.	1.	27.	3.	1.	42.
2001	0.	0.	19.	0.	0.	62.	0.	0.	11628.	0.	0.	27.	0.	0.	42.
2002	0.	0.	19.	0.	0.	62.	0.	0.	11628.	0.	0.	27.	0.	0.	42.

YEAR	GROUP 61(5, 4, 7, 3) NEW	RET	NET	GROUP 62(6, 2, 1, 3) NEW	RET	NET	GROUP 63(6, 3, 1, 3) NEW	RET	NET	GROUP 64(6, 3, 1, 4) NEW	RET	NET	GROUP 65(6, 3, 2, 3) NEW	RET	NET
1978	1.	0.	31.	3.	1.	48.	12.	3.	183.	0.	0.	3.	0.	0.	1.
1979	3.	1.	33.	3.	1.	50.	14.	4.	193.	0.	0.	3.	0.	0.	1.
1980	2.	1.	34.	4.	1.	53.	17.	4.	206.	0.	0.	3.	0.	0.	1.
1981	4.	1.	37.	5.	1.	57.	22.	4.	224.	0.	0.	3.	0.	0.	1.
1982	2.	1.	38.	4.	1.	60.	17.	5.	236.	0.	0.	3.	0.	0.	1.
1983	2.	1.	39.	3.	1.	62.	13.	5.	244.	0.	0.	3.	0.	0.	1.
1984	2.	1.	40.	4.	1.	65.	17.	5.	256.	0.	0.	3.	0.	0.	1.
1985	3.	1.	42.	5.	1.	69.	19.	5.	270.	0.	0.	3.	0.	0.	1.
1986	2.	1.	43.	5.	1.	73.	20.	5.	285.	0.	0.	3.	0.	0.	1.
1987	2.	1.	44.	5.	1.	77.	22.	6.	301.	0.	0.	3.	0.	0.	1.
1988	4.	1.	47.	10.	1.	86.	41.	6.	336.	0.	0.	3.	0.	0.	1.
1989	4.	1.	50.	7.	2.	91.	27.	7.	356.	0.	0.	3.	0.	0.	1.
1990	4.	1.	53.	7.	2.	96.	30.	7.	379.	0.	0.	3.	0.	0.	1.
1991	4.	1.	56.	7.	2.	101.	31.	7.	403.	0.	0.	3.	0.	0.	1.
1992	5.	1.	60.	8.	2.	107.	33.	8.	428.	0.	0.	3.	0.	0.	1.
1993	4.	1.	63.	8.	2.	113.	35.	9.	454.	0.	0.	3.	0.	0.	1.
1994	5.	1.	67.	9.	2.	120.	38.	9.	483.	0.	0.	3.	0.	0.	1.
1995	5.	1.	71.	9.	2.	127.	38.	10.	511.	0.	0.	3.	0.	0.	1.
1996	6.	1.	76.	10.	2.	135.	40.	10.	541.	0.	0.	3.	0.	0.	1.
1997	5.	1.	80.	10.	3.	142.	42.	11.	572.	0.	0.	3.	0.	0.	1.
1998	6.	1.	85.	11.	3.	150.	46.	12.	606.	0.	0.	3.	0.	0.	1.
1999	6.	2.	89.	11.	3.	158.	48.	12.	642.	0.	0.	3.	0.	0.	1.
2000	6.	2.	93.	11.	3.	166.	48.	12.	678.	0.	0.	3.	0.	0.	1.
2001	0.	0.	93.	0.	0.	166.	0.	0.	678.	0.	0.	3.	0.	0.	1.
2002	0.	0.	93.	0.	0.	166.	0.	0.	678.	0.	0.	3.	0.	0.	1.

YEAR	GROUP 66(6, 3, 7, 3) NEW	RET	NET	GROUP 67(6, 4, 1, 3) NEW	RET	NET	GROUP 68(6, 4, 7, 3) NEW	RET	NET	GROUP 69(7, 1, 1, 1) NEW	RET	NET	GROUP 70(7, 1, 1, 2) NEW	RET	NET
1978	0.	0.	2.	2.	0.	25.	0.	0.	1.	54.	22.	1063.	56.	0.	621.
1979	0.	0.	2.	2.	0.	27.	0.	0.	1.	56.	25.	1094.	52.	0.	673.
1980	0.	0.	2.	3.	0.	30.	0.	0.	1.	35.	17.	1112.	65.	0.	738.
1981	0.	0.	2.	3.	1.	32.	0.	0.	1.	38.	29.	1121.	72.	0.	810.
1982	0.	0.	2.	3.	1.	34.	0.	0.	1.	89.	51.	1159.	56.	2.	864.
1983	0.	0.	2.	2.	1.	35.	0.	0.	1.	113.	73.	1199.	57.	16.	905.
1984	0.	0.	2.	3.	1.	37.	0.	0.	1.	138.	88.	1249.	94.	50.	949.
1985	0.	0.	2.	3.	1.	39.	0.	0.	1.	150.	105.	1294.	150.	102.	997.
1986	0.	0.	2.	3.	1.	41.	0.	0.	1.	146.	111.	1329.	200.	148.	1049.
1987	0.	0.	2.	4.	1.	44.	0.	0.	1.	126.	90.	1365.	184.	115.	1118.
1988	1.	0.	3.	6.	1.	49.	1.	0.	2.	81.	55.	1391.	87.	42.	1163.
1989	0.	0.	3.	4.	1.	52.	0.	0.	2.	62.	39.	1414.	49.	8.	1204.
1990	0.	0.	3.	5.	1.	56.	0.	0.	2.	79.	49.	1444.	39.	4.	1239.
1991	1.	0.	4.	5.	1.	60.	1.	0.	3.	108.	66.	1486.	12.	7.	1244.
1992	1.	0.	5.	5.	1.	64.	1.	0.	4.	96.	59.	1523.	18.	7.	1255.
1993	1.	0.	6.	6.	1.	69.	1.	0.	5.	78.	46.	1555.	28.	12.	1271.
1994	1.	0.	7.	6.	1.	74.	1.	0.	6.	79.	45.	1589.	37.	24.	1284.
1995	1.	0.	8.	6.	1.	79.	1.	0.	7.	84.	53.	1620.	51.	37.	1298.
1996	1.	0.	9.	6.	2.	83.	1.	0.	8.	82.	55.	1647.	69.	52.	1315.
1997	1.	0.	10.	7.	2.	88.	1.	0.	9.	78.	48.	1677.	77.	59.	1333.
1998	1.	0.	11.	7.	2.	93.	1.	0.	10.	72.	41.	1708.	83.	65.	1351.
1999	1.	0.	12.	8.	2.	99.	1.	0.	11.	80.	50.	1738.	86.	68.	1369.
2000	1.	0.	13.	8.	2.	105.	1.	0.	12.	80.	50.	1768.	86.	68.	1387.
2001	0.	0.	13.	0.	0.	105.	0.	0.	12.	0.	0.	1768.	0.	0.	1387.
2002	0.	0.	13.	0.	0.	105.	0.	0.	12.	0.	0.	1768.	0.	0.	1387.

YEAR	GROUP 71(7, 1, 1, 3)			GROUP 72(7, 1, 2, 1)			GROUP 73(7, 1, 4, 1)			GROUP 74(7, 1, 5, 1)			GROUP 75(7, 1, 7, 1)		
	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET
1978	0.	23.	275.	11.	2.	177.	11.	11.	248.	5.	2.	67.	1.	0.	10.
1979	0.	19.	256.	10.	2.	185.	11.	12.	247.	4.	2.	69.	0.	0.	10.
1980	0.	13.	243.	7.	2.	190.	10.	10.	247.	2.	1.	70.	1.	0.	11.
1981	0.	12.	231.	7.	4.	193.	8.	8.	247.	3.	2.	71.	1.	1.	11.
1982	0.	18.	213.	19.	9.	203.	12.	12.	247.	5.	3.	73.	1.	0.	12.
1983	0.	11.	202.	24.	13.	214.	16.	18.	245.	7.	4.	76.	1.	1.	12.
1984	0.	10.	192.	28.	15.	227.	22.	21.	246.	10.	6.	80.	2.	1.	13.
1985	0.	10.	182.	28.	16.	239.	29.	31.	244.	10.	8.	82.	1.	1.	13.
1986	0.	10.	172.	28.	17.	250.	31.	33.	242.	10.	7.	85.	2.	1.	14.
1987	0.	8.	164.	24.	13.	261.	26.	30.	238.	9.	7.	87.	1.	0.	15.
1988	0.	18.	146.	13.	7.	267.	28.	24.	242.	6.	4.	89.	0.	0.	15.
1989	0.	12.	134.	11.	6.	272.	18.	12.	248.	5.	3.	91.	1.	1.	15.
1990	0.	14.	120.	16.	10.	278.	11.	6.	253.	6.	4.	93.	1.	0.	16.
1991	0.	12.	108.	22.	14.	286.	16.	6.	263.	8.	4.	97.	1.	1.	16.
1992	0.	12.	96.	21.	13.	294.	14.	5.	272.	7.	5.	99.	2.	1.	17.
1993	0.	5.	91.	17.	10.	301.	12.	5.	279.	6.	3.	102.	0.	0.	17.
1994	0.	4.	87.	15.	10.	306.	14.	5.	288.	5.	4.	103.	1.	1.	17.
1995	0.	5.	82.	17.	11.	312.	20.	7.	301.	6.	3.	106.	1.	0.	18.
1996	0.	4.	78.	15.	11.	316.	19.	9.	311.	5.	3.	108.	1.	1.	18.
1997	0.	5.	73.	15.	9.	322.	21.	11.	321.	6.	3.	111.	1.	1.	18.
1998	0.	4.	69.	13.	8.	327.	20.	11.	330.	5.	3.	113.	1.	0.	19.
1999	0.	4.	65.	16.	10.	333.	20.	10.	340.	6.	4.	115.	0.	0.	19.
2000	0.	4.	61.	16.	10.	339.	20.	10.	350.	6.	4.	117.	0.	0.	19.
2001	0.	0.	61.	0.	0.	339.	0.	0.	350.	0.	0.	117.	0.	0.	19.
2002	0.	0.	61.	0.	0.	339.	0.	0.	350.	0.	0.	117.	0.	0.	19.

YEAR	GROUP 76(7, 1, 7, 2)			GROUP 77(7, 1, 7, 3)			GROUP 78(7, 2, 1, 2)			GROUP 79(7, 3, 1, 1)			GROUP 80(7, 3, 1, 2)		
	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET	NEW	RET	NET
1978	6.	0.	18.	0.	4.	40.	7.	1.	71.	6.	0.	77.	156.	27.	1492.
1979	4.	0.	22.	0.	2.	38.	8.	2.	77.	8.	3.	82.	155.	29.	1618.
1980	6.	0.	28.	0.	4.	34.	7.	1.	83.	8.	0.	90.	161.	32.	1747.
1981	7.	0.	35.	0.	4.	30.	11.	3.	91.	11.	3.	98.	229.	37.	1939.
1982	6.	0.	41.	0.	3.	27.	12.	2.	101.	14.	3.	109.	235.	38.	2136.
1983	3.	0.	44.	0.	1.	26.	7.	1.	107.	6.	0.	115.	170.	41.	2285.
1984	6.	1.	49.	0.	2.	24.	9.	3.	113.	8.	3.	120.	177.	47.	2395.
1985	4.	1.	52.	0.	1.	23.	12.	3.	122.	14.	3.	131.	245.	49.	2501.
1986	7.	1.	58.	0.	1.	22.	16.	3.	135.	17.	3.	145.	313.	59.	2673.
1987	5.	1.	62.	0.	1.	21.	11.	3.	143.	11.	3.	153.	253.	57.	3050.
1988	6.	1.	67.	0.	2.	19.	20.	3.	160.	23.	3.	173.	437.	62.	3425.
1989	5.	0.	72.	0.	3.	16.	16.	3.	173.	17.	3.	187.	329.	67.	3687.
1990	5.	1.	76.	0.	1.	15.	18.	4.	187.	20.	6.	201.	363.	75.	3975.
1991	3.	0.	79.	0.	3.	12.	19.	3.	203.	20.	3.	218.	386.	79.	4262.
1992	5.	1.	83.	0.	3.	9.	20.	4.	219.	23.	6.	235.	414.	86.	4610.
1993	1.	0.	84.	0.	0.	9.	20.	3.	236.	20.	3.	252.	439.	92.	4957.
1994	3.	1.	86.	0.	1.	8.	23.	5.	254.	25.	6.	271.	469.	99.	5327.
1995	5.	4.	87.	0.	0.	8.	22.	5.	271.	23.	6.	288.	470.	107.	5690.
1996	6.	3.	90.	0.	1.	7.	25.	5.	291.	25.	6.	307.	501.	114.	6077.
1997	4.	3.	91.	0.	0.	7.	25.	5.	311.	28.	6.	329.	527.	122.	6482.
1998	7.	4.	94.	0.	1.	6.	28.	7.	332.	31.	8.	352.	572.	131.	6923.
1999	6.	4.	96.	0.	1.	5.	28.	6.	354.	28.	6.	374.	600.	137.	7396.
2000	6.	4.	98.	0.	1.	4.	28.	6.	376.	28.	6.	396.	600.	137.	7849.
2001	0.	0.	98.	0.	0.	4.	0.	0.	376.	0.	0.	396.	0.	0.	7849.
2002	0.	0.	98.	0.	0.	4.	0.	0.	376.	0.	0.	396.	0.	0.	7849.

YEAR	GROUP 81(7, 3, 4, 1) NEW	RET	NET	GROUP 82(7, 3, 4, 2) NEW	RET	NET	GROUP 83(7, 3, 4, 3) NEW	RET	NET	GROUP 84(7, 4, 1, 2) NEW	RET	NET	GROUP 85(7, 4, 4, 1) NEW	RET	NET
1978	0.	2.	78.	3.	1.	48.	2.	1.	32.	10.	4.	147.	2.	1.	32.
1979	7.	2.	83.	4.	1.	51.	2.	0.	34.	15.	2.	160.	2.	0.	34.
1980	6.	2.	87.	4.	1.	54.	3.	1.	36.	16.	4.	172.	3.	1.	36.
1981	8.	1.	94.	5.	2.	57.	4.	1.	39.	24.	4.	192.	3.	1.	38.
1982	8.	3.	99.	4.	1.	60.	2.	0.	41.	22.	4.	210.	2.	0.	40.
1983	0.	2.	103.	4.	2.	62.	2.	1.	42.	16.	4.	222.	2.	1.	41.
1984	5.	1.	107.	3.	1.	64.	3.	1.	44.	18.	5.	235.	2.	1.	42.
1985	9.	3.	113.	5.	2.	67.	4.	1.	47.	26.	5.	256.	3.	1.	44.
1986	7.	2.	118.	4.	2.	69.	2.	1.	48.	29.	4.	281.	3.	1.	46.
1987	9.	3.	124.	5.	2.	72.	4.	1.	51.	26.	5.	302.	3.	1.	48.
1988	12.	3.	133.	7.	2.	77.	3.	1.	53.	44.	7.	339.	4.	1.	51.
1989	10.	2.	141.	6.	2.	81.	4.	1.	56.	33.	5.	367.	4.	1.	54.
1990	13.	4.	150.	7.	2.	86.	5.	1.	60.	36.	9.	394.	4.	1.	57.
1991	12.	2.	160.	7.	2.	91.	4.	1.	63.	38.	7.	425.	5.	1.	61.
1992	14.	4.	170.	7.	2.	96.	6.	2.	67.	40.	7.	458.	4.	1.	64.
1993	14.	4.	180.	8.	2.	102.	5.	1.	71.	46.	11.	493.	5.	1.	68.
1994	15.	4.	191.	8.	2.	106.	5.	1.	75.	46.	9.	530.	6.	2.	72.
1995	16.	3.	204.	9.	3.	114.	6.	2.	79.	47.	11.	566.	5.	1.	76.
1996	16.	4.	216.	9.	2.	121.	6.	1.	84.	49.	11.	604.	6.	2.	80.
1997	17.	4.	229.	9.	3.	127.	6.	2.	88.	53.	13.	644.	6.	1.	85.
1998	18.	5.	242.	10.	2.	135.	8.	2.	94.	57.	13.	688.	7.	2.	90.
1999	19.	4.	257.	10.	3.	142.	7.	2.	99.	58.	13.	735.	7.	2.	95.
2000	19.	4.	272.	10.	3.	149.	7.	2.	104.	58.	13.	778.	7.	2.	100.
2001	0.	0.	272.	0.	0.	149.	0.	0.	104.	0.	0.	778.	0.	0.	100.
2002	0.	0.	272.	0.	0.	149.	0.	0.	104.	0.	0.	778.	0.	0.	100.

YEAR	GROUP 86(7, 4, 7, 1) NEW	RET	NET	GROUP 87(8, 1, 4, 1) NEW	RET	NET	GROUP 88(8, 1, 5, 1) NEW	RET	NET	GROUP 89(8, 3, 4, 1) NEW	RET	NET	GROUP 90(8, 3, 4, 2) NEW	RET	NET
1978	5.	1.	36.	3.	2.	69.	0.	1.	14.	1.	0.	16.	3.	1.	48.
1979	4.	0.	40.	2.	3.	68.	0.	0.	14.	1.	0.	17.	4.	1.	51.
1980	4.	1.	43.	3.	2.	69.	1.	1.	14.	1.	0.	18.	3.	1.	53.
1981	6.	1.	48.	2.	2.	69.	0.	0.	14.	2.	1.	19.	4.	0.	57.
1982	7.	1.	54.	3.	3.	69.	0.	0.	14.	1.	0.	20.	4.	1.	60.
1983	5.	1.	58.	4.	4.	69.	0.	1.	13.	1.	0.	21.	3.	1.	62.
1984	4.	1.	61.	7.	7.	69.	1.	1.	13.	1.	1.	21.	2.	1.	63.
1985	7.	1.	67.	9.	8.	70.	1.	1.	13.	1.	0.	22.	4.	1.	66.
1986	10.	2.	75.	9.	10.	69.	1.	2.	12.	1.	0.	23.	3.	0.	69.
1987	7.	1.	81.	7.	7.	69.	1.	1.	12.	1.	0.	24.	4.	1.	72.
1988	13.	2.	92.	6.	6.	69.	1.	1.	12.	2.	0.	26.	6.	1.	77.
1989	10.	2.	100.	4.	2.	71.	1.	1.	12.	2.	1.	27.	5.	1.	81.
1990	11.	2.	109.	3.	1.	73.	1.	0.	13.	2.	0.	29.	6.	1.	86.
1991	12.	2.	119.	4.	2.	75.	0.	0.	13.	2.	1.	30.	7.	2.	91.
1992	13.	2.	130.	6.	3.	78.	1.	0.	14.	2.	0.	32.	6.	1.	96.
1993	14.	3.	141.	3.	1.	80.	0.	0.	14.	2.	0.	34.	7.	2.	101.
1994	16.	3.	154.	3.	2.	81.	1.	0.	15.	3.	1.	36.	8.	2.	107.
1995	15.	3.	166.	5.	2.	84.	1.	0.	16.	3.	1.	38.	9.	2.	114.
1996	16.	3.	179.	5.	3.	86.	1.	1.	16.	3.	1.	40.	8.	2.	120.
1997	18.	4.	193.	6.	3.	89.	1.	1.	16.	3.	1.	42.	9.	2.	127.
1998	20.	4.	209.	5.	3.	91.	1.	0.	17.	3.	0.	45.	10.	3.	134.
1999	20.	4.	225.	6.	3.	94.	1.	0.	18.	4.	2.	47.	10.	2.	142.
2000	20.	4.	241.	6.	3.	97.	1.	0.	19.	4.	2.	49.	10.	2.	150.
2001	0.	0.	241.	0.	0.	97.	0.	0.	19.	0.	0.	49.	0.	0.	150.
2002	0.	0.	241.	0.	0.	97.	0.	0.	19.	0.	0.	49.	0.	0.	150.

YEAR	GROUP 91(9, 1, 1, 1) NEW	RET	NET	GROUP 92(9, 1, 4, 1) NEW	RET	NET	GROUP 93(10, 2, 1, 2) NEW	RET	NET	GROUP 94(10, 3, 1, 1) NEW	RET	NET	GROUP 95(10, 3, 1, 2) NEW	RET	NET
1978	1.	2.	37.	2.	3.	59.	1.	0.	10.	0.	0.	4.	18.	3.	173.
1979	1.	2.	36.	2.	3.	58.	1.	0.	11.	1.	0.	5.	18.	4.	187.
1980	2.	2.	36.	2.	2.	58.	1.	0.	12.	1.	0.	6.	18.	3.	202.
1981	1.	1.	36.	2.	2.	58.	2.	0.	14.	1.	0.	7.	27.	4.	225.
1982	1.	2.	35.	1.	3.	56.	1.	0.	15.	1.	0.	8.	27.	5.	247.
1983	2.	3.	34.	3.	4.	55.	1.	0.	16.	0.	0.	8.	20.	5.	262.
1984	2.	3.	33.	4.	6.	53.	1.	0.	17.	1.	0.	9.	20.	5.	277.
1985	4.	5.	32.	6.	7.	52.	2.	0.	19.	1.	0.	10.	28.	5.	300.
1986	4.	6.	30.	6.	8.	50.	2.	0.	21.	1.	0.	11.	36.	6.	330.
1987	3.	4.	29.	6.	9.	47.	2.	0.	23.	1.	0.	12.	29.	7.	352.
1988	4.	4.	29.	7.	6.	48.	3.	0.	26.	1.	0.	13.	50.	7.	395.
1989	2.	1.	30.	5.	4.	49.	2.	0.	28.	1.	0.	14.	38.	8.	425.
1990	1.	1.	30.	2.	1.	50.	2.	1.	29.	1.	0.	15.	42.	9.	458.
1991	2.	0.	32.	3.	0.	53.	2.	1.	30.	1.	0.	16.	45.	9.	494.
1992	1.	1.	32.	2.	0.	55.	3.	1.	32.	1.	0.	17.	48.	10.	532.
1993	1.	0.	33.	2.	1.	56.	3.	1.	34.	1.	0.	18.	51.	10.	573.
1994	2.	0.	35.	3.	0.	59.	3.	1.	36.	2.	0.	20.	55.	11.	617.
1995	2.	1.	36.	5.	2.	62.	3.	1.	38.	1.	0.	21.	54.	12.	659.
1996	2.	0.	38.	4.	2.	64.	3.	1.	40.	2.	0.	23.	58.	13.	704.
1997	3.	2.	39.	5.	2.	67.	3.	1.	42.	2.	0.	25.	61.	14.	751.
1998	3.	2.	40.	5.	2.	70.	4.	1.	45.	2.	1.	26.	66.	15.	802.
1999	3.	1.	42.	4.	2.	72.	4.	1.	48.	2.	0.	28.	69.	16.	855.
2000	3.	1.	44.	4.	2.	74.	4.	1.	51.	2.	0.	30.	69.	16.	908.
2001	0.	0.	44.	0.	0.	74.	0.	0.	51.	0.	0.	30.	0.	0.	908.
2002	0.	0.	44.	0.	0.	74.	0.	0.	51.	0.	0.	30.	0.	0.	908.

YEAR	GROUP 96(10, 3, 2, 2) NEW	RET	NET	GROUP 97(10, 4, 1, 1) NEW	RET	NET	GROUP 98(10, 4, 1, 2) NEW	RET	NET
1978	3.	1.	18.	4.	0.	54.	2.	0.	15.
1979	1.	0.	19.	6.	2.	58.	1.	0.	16.
1980	2.	0.	21.	6.	0.	64.	2.	0.	18.
1981	3.	1.	23.	8.	2.	70.	2.	0.	20.
1982	3.	0.	26.	10.	2.	78.	2.	0.	22.
1983	3.	1.	28.	4.	0.	82.	2.	0.	24.
1984	1.	0.	29.	6.	2.	86.	2.	1.	25.
1985	4.	1.	32.	10.	2.	94.	2.	1.	26.
1986	3.	0.	35.	12.	2.	104.	3.	0.	29.
1987	4.	1.	38.	8.	2.	110.	2.	1.	30.
1988	6.	1.	43.	16.	2.	124.	4.	1.	33.
1989	5.	1.	47.	12.	2.	134.	3.	1.	35.
1990	5.	1.	51.	14.	4.	144.	4.	1.	38.
1991	5.	1.	55.	14.	2.	156.	4.	1.	41.
1992	6.	1.	60.	16.	4.	168.	4.	1.	44.
1993	6.	1.	65.	14.	2.	180.	4.	1.	47.
1994	6.	1.	70.	18.	4.	194.	4.	1.	50.
1995	7.	2.	75.	16.	4.	206.	5.	1.	54.
1996	7.	1.	81.	18.	4.	220.	5.	1.	58.
1997	8.	2.	87.	20.	4.	236.	5.	1.	62.
1998	9.	2.	94.	22.	6.	252.	5.	1.	66.
1999	8.	1.	101.	20.	4.	268.	6.	1.	71.
2000	8.	1.	108.	20.	4.	284.	6.	1.	76.
2001	0.	0.	108.	0.	0.	284.	0.	0.	76.
2002	0.	0.	108.	0.	0.	284.	0.	0.	76.

NSE Pages 48-50: User-System Purchase Summary

The user-system purchase summary describes the user's reaction to the FAA implementation/operating schedules. These data are based entirely on NSE model user input; no nominal data exists, nor are the purchase strategies automatically derived.

The purchase strategy, for any given group, is defined by the first and last years that new aircraft buy the system and the first and last years that existing aircraft transition to the new system. The purchase summary lists these data for each group. Generally, the purchase data is a direct result of the region combination. Thus, in addition to identifying the group index, the purchase summary identifies the region combination via zeroes and ones in the columns immediately following the group index (the column labels for these columns are designed to be read vertically).

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USER-SYSTEM PURCHASE SUMMARY

GROUP	REG	SYSTEM: VOR				SYSTEM: SELF CON				SYSTEM: LORAN-C				SYSTEM: OMEGA				SYSTEM: DF OMEGA				SYSTEM: GPS			
	CACAO GROUP MASS	NEW AC PURCHASE YEARS 1ST	LAST	TRANS AC PURCHASE YEARS 1ST	LAST	NEW AC PURCHASE YEARS 1ST	LAST	TRANS AC PURCHASE YEARS 1ST	LAST	NEW AC PURCHASE YEARS 1ST	LAST	TRANS AC PURCHASE YEARS 1ST	LAST	NEW AC PURCHASE YEARS 1ST	LAST	TRANS AC PURCHASE YEARS 1ST	LAST	NEW AC PURCHASE YEARS 1ST	LAST	TRANS AC PURCHASE YEARS 1ST	LAST	NEW AC PURCHASE YEARS 1ST	LAST	TRANS AC PURCHASE YEARS 1ST	LAST
1	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
2	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
3	11000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
4	01000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
5	01010*1978	1989	0	0*	1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
6	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
7	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
8	11000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
9	01000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
10	01000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
11	01010*1978	1989	0	0*	1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
12	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
13	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
14	11000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
15	10100*1978	1989	0	0*	1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
16	11110*1978	1989	0	0*	1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
17	01000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
18	01010*1978	1989	0	0*	1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
19	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
20	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
21	11000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
22	10100*1978	1989	0	0*	1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
23	01000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
24	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
25	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
26	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
27	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
28	11000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
29	01000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
30	01010*1978	1989	0	0*	1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
31	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
32	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
33	11000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
34	10100*1978	1989	0	0*	1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
35	10100*1978	1989	0	0*	1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
36	01000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
37	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
38	11000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
39	10100*1978	1989	0	0*	1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
40	01000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999

USER-SYSTEM PURCHASE SUMMARY

GROUP	REG	SYSTEM: VOR				SYSTEM: SELF CON				SYSTEM: LORAN-C				SYSTEM: OMEGA				SYSTEM: DF OMEGA				SYSTEM: GPS			
	CACAO OMONC NASS	NEW AC PURCHASE YEARS 1ST	LAST	TRANS AC PURCHASE YEARS 1ST	LAST	NEW AC PURCHASE YEARS 1ST	LAST	TRANS AC PURCHASE YEARS 1ST	LAST	NEW AC PURCHASE YEARS 1ST	LAST	TRANS AC PURCHASE YEARS 1ST	LAST	NEW AC PURCHASE YEARS 1ST	LAST	TRANS AC PURCHASE YEARS 1ST	LAST	NEW AC PURCHASE YEARS 1ST	LAST	TRANS AC PURCHASE YEARS 1ST	LAST	NEW AC. PURCHASE YEARS 1ST	LAST	TRANS AC PURCHASE YEARS 1ST	LAST
41	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
42	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
43	11000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
44	10100*1978	1989	0	0*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999			
45	11110*1978	1989	0	0*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999			
46	01000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
47	10001*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
48	10100*1978	1989	0	0*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999			
49	01000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
50	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
51	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
52	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
53	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
54	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
55	11000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
56	10100*1978	1989	0	0*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999			
57	01000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
58	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
59	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
60	11000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
61	01000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
62	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
63	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
64	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
65	11000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
66	01000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
67	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
68	01000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
69	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
70	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
71	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
72	11000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
73	10001*1978	1989	0	0*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999			
74	11001*1978	1989	0	0*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999			
75	01000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
76	01000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
77	01000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
78	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
79	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		
80	10000*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*1990	2010	1990	1999		

USER-SYSTEM PURCHASE SUMMARY

GROUP	REG	SYSTEM: VOR				SYSTEM: SELF CON				SYSTEM: LORAN-C				SYSTEM: OMEGA				SYSTEM: DF OMEGA				SYSTEM: GPS			
	CASAD GROUP MASS	NEW AC PURCHASE YEARS 1ST	LAST	TRANS AC PURCHASE YEARS 1ST	LAST	NEW AC PURCHASE YEARS 1ST	LAST	TRANS AC PURCHASE YEARS 1ST	LAST	NEW AC PURCHASE YEARS 1ST	LAST	TRANS AC PURCHASE YEARS 1ST	LAST	NEW AC PURCHASE YEARS 1ST	LAST	TRANS AC PURCHASE YEARS 1ST	LAST	NEW AC PURCHASE YEARS 1ST	LAST	TRANS AC PURCHASE YEARS 1ST	LAST	NEW AC PURCHASE YEARS 1ST	LAST	TRANS AC PURCHASE YEARS 1ST	LAST
81	10001	*1978	1989	0	0*	1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
82	10001	*1978	1989	0	0*	1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
83	10001	*1978	1989	0	0*	1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
84	10000	*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
85	10001	*1978	1989	0	0*	1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
86	01000	*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
87	10001	*1978	1989	0	0*	1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
88	11001	*1978	1989	0	0*	1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
89	10001	*1978	1989	0	0*	1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
90	10001	*1978	1989	0	0*	1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
91	10000	*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
92	10001	*1978	1989	0	0*	1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
93	10000	*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
94	10000	*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
95	10000	*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
96	11000	*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
97	10000	*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999
98	10000	*1978	1989	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	0	0	0	0*	1990	2010	1990	1999

NSE Pages 51-52: Avionics Equippage, Component and Configuration Summary

Pages 51 and 52 present the avionics equippage, component and configuration data. For each system, each avionics "component" is identified (numbered 1 through 10). Associated with each component is its current (1977) price, the applicable volume discount coefficient, the annual recurring cost and number of prior sales value. On the right side of each page, the composition of each "avionics category," in terms of the components (units) is identified. For example, a user in Avionics Category 5 (intermediate cost GA RNAV) who buys VOR equipment (a VOR "package") is presumed to buy dual VOR-B units, a DME-B unit and an RNAV-B unit.

AVIONICS DATA SUMMARY

ALL COSTS IN THOUSANDS OF DOLLARS (1977)

SYSTEM		AVIONICS EQUIP.	AVIONICS EQUIPMENT/COMPONENT DATA: CURRENT PRICE	VOL DISC COEF	ANN REC COST	PRIOR SALES	AVIONICS PCKG CONFIGURATIONS BY AVIONICS CLASS: AV CAT 1	AV CAT 2	AV CAT 3	AV CAT 4	AV CAT 5	AV CAT 6	AV CAT 7	AV CAT 8	AV CAT 9	AV CAT 10
VOR	1.	VOR-A	1.495	.900	.000	503479.	1.	2.	0.	0.	0.	0.	0.	0.	0.	0.
VOR	2.	VOR-B	1.604	.900	.000	211565.	0.	0.	2.	0.	2.	0.	0.	0.	0.	0.
VOR	3.	VOR-C	3.318	.900	.000	94587.	0.	0.	0.	2.	0.	2.	0.	0.	0.	0.
VOR	4.	VOR-D	3.919	.900	.000	32497.	0.	0.	0.	0.	0.	0.	2.	2.	2.	2.
VOR	5.	DME-B	3.695	.900	.000	43558.	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.
VOR	6.	DME-C	3.950	.900	.000	19886.	0.	0.	0.	1.	0.	1.	0.	0.	0.	0.
VOR	7.	DME-D	10.000	.900	.000	13381.	0.	0.	0.	0.	0.	0.	2.	2.	2.	2.
VOR	8.	RNAV-B	2.295	.900	.000	8500.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
VOR	9.	RNAV-C	12.998	.900	.000	250.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
VOR	10.	RNAV-D	12.998	.900	.000	250.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
SELF CON	1.	OMEGA-A	6.708	.900	.000	100.	1.	2.	1.	0.	0.	0.	0.	0.	0.	0.
SELF CON	2.	OMEGA-B	7.937	.900	.000	100.	0.	0.	1.	1.	2.	0.	0.	0.	0.	0.
SELF CON	3.	OMEGA-C	11.405	.900	.000	100.	0.	0.	0.	1.	0.	2.	0.	0.	0.	0.
SELF CON	4.	OMEGA-D	17.617	.900	.000	1000.	0.	0.	0.	0.	0.	0.	2.	2.	2.	2.
SELF CON	5.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
SELF CON	6.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
SELF CON	7.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
SELF CON	8.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
SELF CON	9.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
SELF CON	10.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
LORAN-C	1.	LORANC-A	6.708	.900	.000	100.	1.	2.	1.	0.	0.	0.	0.	0.	0.	0.
LORAN-C	2.	LORANC-B	7.937	.900	.000	100.	0.	0.	1.	1.	2.	0.	0.	0.	0.	0.
LORAN-C	3.	LORANC-C	11.405	.900	.000	100.	0.	0.	0.	1.	0.	2.	0.	0.	0.	0.
LORAN-C	4.	LORANC-D	17.617	.900	.000	1000.	0.	0.	0.	0.	0.	0.	2.	2.	2.	2.
LORAN-C	5.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
LORAN-C	6.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
LORAN-C	7.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
LORAN-C	8.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
LORAN-C	9.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
LORAN-C	10.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

AVIONICS DATA SUMMARY

ALL COSTS IN THOUSANDS OF DOLLARS (1977)

SYSTEM		AVIONICS EQUIP.	AVIONICS EQUIPMENT/COMPONENT DATA: CURRENT PRICE	VOL DISC COEF	ANN REC COST	PRIOR SALES	AVIONICS PCKG CONFIGURATIONS BY AVIONICS CLASS: AV CAT 1	AV CAT 2	AV CAT 3	AV CAT 4	AV CAT 5	AV CAT 6	AV CAT 7	AV CAT 8	AV CAT 9	AV CAT 10
OMEGA	1.	OMEGA-A	6.708	.900	.000	100.	1.	2.	1.	0.	0.	0.	0.	0.	0.	0.
OMEGA	2.	OMEGA-B	7.937	.900	.000	100.	0.	0.	1.	1.	2.	0.	0.	0.	0.	0.
OMEGA	3.	OMEGA-C	11.405	.900	.000	100.	0.	0.	0.	1.	0.	2.	0.	0.	0.	0.
OMEGA	4.	OMEGA-D	17.617	.900	.000	1000.	0.	0.	0.	0.	0.	0.	2.	2.	2.	2.
OMEGA	5.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
OMEGA	6.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
OMEGA	7.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
OMEGA	8.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
OMEGA	9.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
OMEGA	10.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DF OMEGA	1.	DF OMG-A	.750	.900	.000	100000.	1.	2.	1.	0.	0.	0.	0.	0.	0.	0.
DF OMEGA	2.	DF OMG-B	.769	.900	.000	100000.	0.	0.	1.	1.	2.	0.	0.	0.	0.	0.
DF OMEGA	3.	DF OMG-C	.814	.900	.000	100000.	0.	0.	0.	1.	0.	2.	0.	0.	0.	0.
DF OMEGA	4.	DF OMG-D	1.000	.900	.000	100000.	0.	0.	0.	0.	0.	0.	2.	2.	2.	2.
DF OMEGA	5.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DF OMEGA	6.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DF OMEGA	7.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DF OMEGA	8.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DF OMEGA	9.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DF OMEGA	10.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
GPS	1.	GPS-A	14.331	.900	.000	50.	1.	2.	1.	0.	0.	0.	0.	0.	0.	0.
GPS	2.	GPS-B	16.704	.900	.000	50.	0.	0.	1.	1.	2.	0.	0.	0.	0.	0.
GPS	3.	GPS-C	25.462	.900	.000	50.	0.	0.	0.	1.	0.	2.	0.	0.	0.	0.
GPS	4.	GPS-D	57.680	.900	.000	50.	0.	0.	0.	0.	0.	0.	2.	2.	2.	2.
GPS	5.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
GPS	6.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
GPS	7.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
GPS	8.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
GPS	9.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
GPS	10.		.000	.000	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

NSE Page 53-54: Avionics Package Data

Pages 53 and 54 summarize the avionics data in terms of avionics packages, rather than by component. For each system and each avionics category, the current price, recurring cost (maintenance), lifetime and installation costs are presented. The package price and recurring costs are computed by the model based on the component and equippage data of the preceding pages. The lifetime and installation costs are keyed to the avionics packages/categories, not their components.

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AVIONICS DATA SUMMARY

ALL COSTS IN THOUSANDS OF DOLLARS (1977)

SYSTEM	AVIONICS CATEGORY	CURRENT PCKG PRICE	ANN. REC. COST	LIFETIME	INSTALL. COST (NEW AC)	INSTALL. COST (RETRO-FIT)
VOR	1. VFR	1.495	.000	11.	.000	.000
VOR	2. LOW COST GA	2.990	.000	11.	.000	.000
VOR	3. INT. COST GA	6.903	.000	11.	.000	.000
VOR	4. HIGH COST GA	10.586	.000	11.	.000	.000
VOR	5. INT. COST GA RNAV	9.198	.000	11.	.000	.000
VOR	6. HIGH COST GA RNAV	23.584	.000	11.	.000	.000
VOR	7. AC IFR LEVEL 1	27.838	.000	14.	.000	.000
VOR	8. AC IFR LEVEL 2	27.838	.000	14.	.000	.000
VOR	9. AC IFR LEVEL 3	27.838	.000	14.	.000	.000
VOR	10. AC RNAV	40.836	.000	11.	.000	.000
SELF CON	1. VFR	6.708	.000	11.	.000	.000
SELF CON	2. LOW COST GA	13.416	.000	11.	.000	.000
SELF CON	3. INT. COST GA	14.645	.000	11.	.000	.000
SELF CON	4. HIGH COST GA	19.342	.000	11.	.000	.000
SELF CON	5. INT. COST GA RNAV	15.874	.000	11.	.000	.000
SELF CON	6. HIGH COST GA RNAV	22.810	.000	11.	.000	.000
SELF CON	7. AC IFR LEVEL 1	35.234	.000	14.	.000	.000
SELF CON	8. AC IFR LEVEL 2	35.234	.000	14.	.000	.000
SELF CON	9. AC IFR LEVEL 3	35.234	.000	14.	.000	.000
SELF CON	10. AC RNAV	35.234	.000	11.	.000	.000
LORAN-C	1. VFR	6.708	.000	11.	.000	.000
LORAN-C	2. LOW COST GA	13.416	.000	11.	.000	.000
LORAN-C	3. INT. COST GA	14.645	.000	11.	.000	.000
LORAN-C	4. HIGH COST GA	19.342	.000	11.	.000	.000
LORAN-C	5. INT. COST GA RNAV	15.874	.000	11.	.000	.000
LORAN-C	6. HIGH COST GA RNAV	22.810	.000	11.	.000	.000
LORAN-C	7. AC IFR LEVEL 1	35.234	.000	14.	.000	.000
LORAN-C	8. AC IFR LEVEL 2	35.234	.000	14.	.000	.000
LORAN-C	9. AC IFR LEVEL 3	35.234	.000	14.	.000	.000
LORAN-C	10. AC RNAV	35.234	.000	11.	.000	.000

NOTE: SELF CONTAINED LIFETIME IS SET EQUAL TO VOR. VOR AND SELF CONTAINED AVIONICS MUST EXPIRE SIMULTANEOUSLY.

AVIONICS DATA SUMMARY

ALL COSTS IN THOUSANDS OF DOLLARS (1977)

SYSTEM	AVIONICS CATEGORY	CURRENT PCKG PRICE	ANN. REC. COST	LIFETIME	INSTALL. COST (NEW AC)	INSTALL. COST (RETRO-FIT)
OMEGA	1. VFR	6.708	.000	11.	.000	.000
OMEGA	2. LOW COST GA	13.416	.000	11.	.000	.000
OMEGA	3. INT. COST GA	14.645	.000	11.	.000	.000
OMEGA	4. HIGH COST GA	19.342	.000	11.	.000	.000
OMEGA	5. INT. COST GA RNAV	15.874	.000	11.	.000	.000
OMEGA	6. HIGH COST GA RNAV	22.810	.000	11.	.000	.000
OMEGA	7. AC IFR LEVEL 1	35.234	.000	14.	.000	.000
OMEGA	8. AC IFR LEVEL 2	35.234	.000	14.	.000	.000
OMEGA	9. AC IFR LEVEL 3	35.234	.000	14.	.000	.000
OMEGA	10. AC RNAV	35.234	.000	11.	.000	.000
DF OMEGA	1. VFR	.750	.000	11.	.000	.000
DF OMEGA	2. LOW COST GA	1.500	.000	11.	.000	.000
DF OMEGA	3. INT. COST GA	1.516	.000	11.	.000	.000
DF OMEGA	4. HIGH COST GA	1.580	.000	11.	.000	.000
DF OMEGA	5. INT. COST GA RNAV	1.532	.000	11.	.000	.000
DF OMEGA	6. HIGH COST GA RNAV	1.628	.000	11.	.000	.000
DF OMEGA	7. AC IFR LEVEL 1	2.000	.000	14.	.000	.000
DF OMEGA	8. AC IFR LEVEL 2	2.000	.000	14.	.000	.000
DF OMEGA	9. AC IFR LEVEL 3	2.000	.000	14.	.000	.000
DF OMEGA	10. AC RNAV	2.000	.000	11.	.000	.000
GPS	1. VFR	14.331	.000	11.	.000	.000
GPS	2. LOW COST GA	28.662	.000	11.	.000	.000
GPS	3. INT. COST GA	31.035	.000	11.	.000	.000
GPS	4. HIGH COST GA	42.186	.000	11.	.000	.000
GPS	5. INT. COST GA RNAV	33.408	.000	11.	.000	.000
GPS	6. HIGH COST GA RNAV	50.924	.000	11.	.000	.000
GPS	7. AC IFR LEVEL 1	115.360	.000	14.	.000	.000
GPS	8. AC IFR LEVEL 2	115.360	.000	14.	.000	.000
GPS	9. AC IFR LEVEL 3	115.360	.000	14.	.000	.000
GPS	10. AC RNAV	115.360	.000	11.	.000	.000

NSE Pages 55-60: Number of Packages Purchased

The output of the number of packages purchased is the first set of user "results." All preceding user data was based directly on the model's nominal data and the NSE model user inputs. The output on pages 55-60 reflects the results of processing avionics age distributions, purchase/transition schedules, etc., to identify the number of units purchased. This is done as the first step in the processing so that the avionics prices can be determined (the prices are a function of the cumulative purchase volume of each of the specified avionics components).

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SYSTEM: VOR NUMBER OF PCKGS PURCHASED BY YEAR AND AVIONICS CATEGORY

YEAR	AVIONICS CAT. 1	AVIONICS CAT. 2	AVIONICS CAT. 3	AVIONICS CAT. 4	AVIONICS CAT. 5	AVIONICS CAT. 6	AVIONICS CAT. 7	AVIONICS CAT. 8	AVIONICS CAT. 9	AVIONICS CAT. 10
1978	3673.	3941.	1849.	1330.	675.	24.	411.	9.	3.	35.
1979	4675.	4994.	2333.	1729.	854.	31.	455.	9.	3.	39.
1980	5813.	6209.	2910.	2141.	1062.	38.	482.	11.	4.	46.
1981	6922.	7386.	3443.	2526.	1269.	46.	583.	15.	6.	57.
1982	5883.	6306.	2966.	2233.	1086.	38.	625.	13.	3.	59.
1983	5240.	5619.	2637.	1992.	960.	35.	546.	13.	5.	48.
1984	6015.	6431.	3020.	2288.	1104.	44.	613.	13.	6.	48.
1985	6499.	6969.	3261.	2513.	1198.	45.	784.	18.	10.	66.
1986	6782.	7274.	3449.	2663.	1252.	48.	920.	19.	10.	75.
1987	7060.	7570.	3563.	2801.	1301.	52.	797.	18.	9.	63.
1988	8137.	9212.	4917.	4477.	1658.	79.	866.	19.	11.	98.
1989	6370.	6985.	3429.	2954.	1218.	52.	683.	15.	7.	84.
1990	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1991	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1992	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1993	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1994	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1995	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1996	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1997	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1998	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1999	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2001	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2002	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2003	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2004	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2005	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2006	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2007	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2008	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2009	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2010	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

SYSTEM: SELF CON NUMBER OF PCKGS PURCHASED BY YEAR AND AVIONICS CATEGORY

YEAR	AVIONICS CAT. 1	AVIONICS CAT. 2	AVIONICS CAT. 3	AVIONICS CAT. 4	AVIONICS CAT. 5	AVIONICS CAT. 6	AVIONICS CAT. 7	AVIONICS CAT. 8	AVIONICS CAT. 9	AVIONICS CAT. 10
1978	0.	4.	3.	15.	0.	0.	31.	9.	2.	0.
1979	1.	5.	6.	22.	2.	0.	37.	9.	2.	0.
1980	0.	6.	6.	27.	0.	0.	36.	11.	2.	0.
1981	2.	8.	8.	33.	1.	0.	47.	15.	4.	0.
1982	1.	8.	6.	28.	1.	0.	46.	13.	2.	0.
1983	0.	8.	6.	27.	1.	0.	45.	13.	3.	0.
1984	1.	6.	6.	29.	0.	0.	55.	13.	4.	0.
1985	0.	9.	7.	34.	2.	0.	66.	18.	6.	0.
1986	1.	6.	8.	35.	1.	0.	67.	19.	6.	0.
1987	2.	8.	7.	37.	0.	0.	63.	18.	6.	0.
1988	0.	7.	10.	48.	2.	0.	69.	19.	7.	0.
1989	0.	9.	5.	36.	1.	0.	56.	15.	5.	0.
1990	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1991	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1992	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1993	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1994	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1995	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1996	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1997	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1998	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1999	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2001	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2002	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2003	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2004	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2005	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2006	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2007	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2008	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2009	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2010	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

SYSTEM: LORAN-C NUMBER OF PCKGS PURCHASED BY YEAR AND AVIONICS CATEGORY

NO LORAN-C PACKAGES WERE PURCHASED IN THIS SCENARIO.

SYSTEM: OMEGA NUMBER OF PCKGS PURCHASED BY YEAR AND AVIONICS CATEGORY

NO OMEGA PACKAGES WERE PURCHASED IN THIS SCENARIO.

SYSTEM: OF OMEGA NUMBER OF PCKGS PURCHASED BY YEAR AND AVIONICS CATEGORY

NO OF OMEGA PACKAGES WERE PURCHASED IN THIS SCENARIO.

SYSTEM: GPS NUMBER OF PCKGS PURCHASED BY YEAR AND AVIONICS CATEGORY

YEAR	AVIONICS CAT. 1	AVIONICS CAT. 2	AVIONICS CAT. 3	AVIONICS CAT. 4	AVIONICS CAT. 5	AVIONICS CAT. 6	AVIONICS CAT. 7	AVIONICS CAT. 8	AVIONICS CAT. 9	AVIONICS CAT. 10
1978	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1979	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1980	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1981	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1982	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1983	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1984	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1985	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1986	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1987	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1988	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1989	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1990	7630.	8331.	4073.	3501.	1445.	63.	760.	19.	3.	91.
1991	8903.	9707.	4735.	4024.	1682.	73.	790.	18.	6.	103.
1992	10148.	11042.	5363.	4525.	1927.	83.	841.	20.	4.	118.
1993	9219.	10098.	4967.	4331.	1764.	77.	939.	18.	5.	123.
1994	8751.	9612.	4746.	4238.	1672.	78.	1028.	21.	9.	118.
1995	9698.	10608.	5197.	4533.	1850.	86.	1124.	28.	10.	114.
1996	10380.	11366.	5576.	4907.	1984.	89.	1193.	23.	7.	139.
1997	10726.	11756.	5814.	5149.	2055.	93.	1139.	26.	9.	152.
1998	11339.	12445.	6129.	5500.	2173.	101.	1679.	37.	28.	145.
1999	18867.	21193.	10988.	10241.	3768.	183.	4252.	91.	33.	268.
2000	6411.	7220.	3743.	3776.	1282.	69.	991.	21.	7.	109.
2001	5599.	6107.	2973.	2535.	1055.	46.	0.	0.	0.	68.
2002	8903.	9707.	4735.	4024.	1682.	73.	0.	0.	0.	103.
2003	10148.	11042.	5363.	4525.	1927.	83.	0.	0.	0.	118.
2004	9219.	10098.	4967.	4331.	1764.	77.	461.	12.	0.	123.
2005	8751.	9612.	4746.	4238.	1672.	78.	778.	18.	6.	118.
2006	9698.	10608.	5197.	4533.	1850.	86.	824.	20.	4.	114.
2007	10380.	11366.	5576.	4907.	1984.	89.	939.	18.	5.	139.
2008	10726.	11756.	5814.	5149.	2055.	93.	1028.	21.	9.	152.
2009	11339.	12445.	6129.	5500.	2173.	101.	1124.	28.	10.	145.
2010	18867.	21193.	10988.	10241.	3768.	183.	1193.	23.	7.	268.

NSE Pages 61-66: Package Prices

The package prices output presents the price of each avionics package by avionics class, system type and year. These prices reflect the results of volume discount, inflation and technology cost reductions as applied to the components which make up a given avionics package.

One page is presented for each system. Asterisks are used to indicate that no units were purchased in a given year.

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SYSTEM: VOR PCKG PRICES (THOUSANDS) FOR THE YEAR PURCHASED. INFLATION AND TECHNOLOGY INCLUDED.

YEAR	AVIONICS CAT. 1	AVIONICS CAT. 2	AVIONICS CAT. 3	AVIONICS CAT. 4	AVIONICS CAT. 5	AVIONICS CAT. 6	AVIONICS CAT. 7	AVIONICS CAT. 8	AVIONICS CAT. 9	AVIONICS CAT. 10
1978	1.518	3.036	7.010	10.746	9.326	23.848	28.164	28.164	28.164	41.226
1979	1.541	3.083	7.118	10.912	9.441	24.016	28.390	28.390	28.390	41.395
1980	1.565	3.131	7.227	11.080	9.553	24.161	28.615	28.615	28.615	41.561
1981	1.589	3.179	7.339	11.251	9.663	24.291	28.827	28.827	28.827	41.700
1982	1.614	3.228	7.452	11.425	9.778	24.448	29.030	29.030	29.030	41.835
1983	1.639	3.278	7.567	11.601	9.901	24.655	29.268	29.268	29.268	42.052
1984	1.664	3.328	7.684	11.780	10.028	24.865	29.668	29.668	29.668	42.474
1985	1.690	3.380	7.803	11.962	10.157	25.072	30.126	30.126	30.126	42.939
1986	1.716	3.432	7.923	12.146	10.287	25.290	30.591	30.591	30.591	43.389
1987	1.742	3.485	8.045	12.334	10.420	25.512	31.063	31.063	31.063	43.870
1988	1.769	3.539	8.169	12.524	10.557	25.705	31.542	31.542	31.542	44.348
1989	1.797	3.593	8.295	12.717	10.717	25.918	32.029	32.029	32.029	44.829
1990	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1991	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1992	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1993	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1994	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1995	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1996	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1997	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1998	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1999	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
2000	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
2001	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
2002	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
2003	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
2004	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
2005	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
2006	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
2007	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
2008	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
2009	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
2010	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********

SYSTEM: SELF CON PCKG PRICES (THOUSANDS) FOR THE YEAR PURCHASED. INFLATION AND TECHNOLOGY INCLUDED.

YEAR	AVIONICS CAT. 1	AVIONICS CAT. 2	AVIONICS CAT. 3	AVIONICS CAT. 4	AVIONICS CAT. 5	AVIONICS CAT. 6	AVIONICS CAT. 7	AVIONICS CAT. 8	AVIONICS CAT. 9	AVIONICS CAT. 10
1978	6.752	13.504	14.703	19.399	15.901	22.896	35.554	35.554	35.554	35.554
1979	6.724	13.457	14.555	19.176	15.653	22.699	35.651	35.651	35.651	35.651
1980	6.692	13.385	14.381	18.908	15.378	22.437	35.751	35.751	35.751	35.751
1981	6.644	13.289	14.213	18.651	15.137	22.165	35.814	35.814	35.814	35.814
1982	6.601	13.203	14.082	18.470	14.962	21.978	35.870	35.870	35.870	35.870
1983	6.587	13.173	14.028	18.394	14.882	21.905	35.985	35.985	35.985	35.985
1984	6.592	13.185	14.014	18.357	14.843	21.872	36.098	36.098	36.098	36.098
1985	6.601	13.202	14.002	18.319	14.801	21.836	36.159	36.159	36.159	36.159
1986	6.613	13.226	13.993	18.283	14.759	21.807	36.207	36.207	36.207	36.207
1987	6.633	13.266	14.007	18.274	14.748	21.801	36.305	36.305	36.305	36.305
1988	6.654	13.308	14.015	18.248	14.722	21.774	36.432	36.432	36.432	36.432
1989	6.684	13.368	14.045	18.253	14.722	21.784	36.613	36.613	36.613	36.613
1990	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1991	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1992	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1993	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1994	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1995	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1996	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1997	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1998	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1999	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
2000	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
2001	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
2002	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
2003	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
2004	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
2005	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
2006	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
2007	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
2008	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
2009	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
2010	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********

SYSTEM: LORAN-C PCKG PRICES (THOUSANDS) FOR THE YEAR PURCHASED. INFLATION AND TECHNOLOGY INCLUDED.

NO LORAN-C PACKAGES WERE PURCHASED IN THIS SCENARIO.

SYSTEM: OMEGA PCKG PRICES (THOUSANDS) FOR THE YEAR PURCHASED. INFLATION AND TECHNOLOGY INCLUDED.

NO OMEGA PACKAGES WERE PURCHASED IN THIS SCENARIO.

SYSTEM: DF OMEGA PCKG PRICES (THOUSANDS) FOR THE YEAR PURCHASED. INFLATION AND TECHNOLOGY INCLUDED.

NO OF OMEGA PACKAGES WERE PURCHASED IN THIS SCENARIO.

SYSTEM: GPS PCKG PRICES (THOUSANDS) FOR THE YEAR PURCHASED. INFLATION AND TECHNOLOGY INCLUDED.

YEAR	AVIONICS CAT. 1	AVIONICS CAT. 2	AVIONICS CAT. 3	AVIONICS CAT. 4	AVIONICS CAT. 5	AVIONICS CAT. 6	AVIONICS CAT. 7	AVIONICS CAT. 8	AVIONICS CAT. 9	AVIONICS CAT. 10
1978	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1979	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1980	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1981	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1982	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1983	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1984	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1985	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1986	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1987	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1988	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1989	*********	*********	*********	*********	*********	*********	*********	*********	*********	*********
1990	7.899	15.798	18.496	29.417	21.193	37.641	94.303	94.303	94.303	94.303
1991	7.143	14.285	15.761	24.013	17.237	30.788	78.163	78.163	78.163	78.163
1992	7.253	14.506	15.707	22.753	16.907	28.598	73.062	73.062	73.062	73.062
1993	7.365	14.729	15.949	22.294	17.168	27.419	70.089	70.089	70.089	70.089
1994	7.478	14.957	16.195	22.112	17.433	26.790	68.068	68.068	68.068	68.068
1995	7.594	15.187	16.445	22.343	17.702	26.984	66.609	66.609	66.609	66.609
1996	7.711	15.422	16.699	22.688	17.975	27.400	65.523	65.523	65.523	65.523
1997	7.830	15.660	16.956	23.038	18.253	27.823	64.779	64.779	64.779	64.779
1998	7.951	15.901	17.218	23.393	18.534	28.252	64.256	64.256	64.256	64.256
1999	8.073	16.147	17.484	23.754	18.820	28.688	64.988	64.988	64.988	64.988
2000	8.198	16.396	17.753	24.121	19.111	29.131	65.991	65.991	65.991	65.991
2001	8.324	16.649	18.027	24.493	19.406	29.580	67.009	67.009	67.009	67.009
2002	8.453	16.906	18.305	24.871	19.705	30.037	68.043	68.043	68.043	68.043
2003	8.583	17.167	18.588	25.255	20.009	30.500	69.093	69.093	69.093	69.093
2004	8.716	17.432	18.875	25.644	20.318	30.971	70.159	70.159	70.159	70.159
2005	8.850	17.700	19.166	26.040	20.631	31.449	71.242	71.242	71.242	71.242
2006	8.987	17.974	19.462	26.442	20.950	31.934	72.341	72.341	72.341	72.341
2007	9.125	18.251	19.762	26.850	21.273	32.427	73.457	73.457	73.457	73.457
2008	9.266	18.533	20.067	27.264	21.601	32.927	74.591	74.591	74.591	74.591
2009	9.409	18.818	20.377	27.685	21.935	33.435	75.741	75.741	75.741	75.741
2010	9.554	19.109	20.691	28.112	22.273	33.951	76.910	76.910	76.910	76.910

NSE Pages 67-164: Short User Output

Pages 67 through 164 present the "short user output." This output can be obtained for a variety of user output groupings. For the run presented here, the short user output was requested for each of the 98 population groups (one page each). Aggregated output can also be obtained by user type, by region combination, by avionics category, by aircraft type, or any cross products thereof. Generally, model results are obtained by user type, or user type/region combination.

The short user ouptut presents, by year, the user group population, the number of avionics packages purchased and "carried" (packages carried are those that were neither purchased nor retired in a given year) and all expense data. The cash outlay column reflects the after tax cash outlay; i.e., the effects of investment tax credit and tax bracket are included. Thus, the cash outlay column is not necessarily the sum of the preceding columns.

A "detailed user output" is also available (not shown). This consists of six pages of data per output group, and provides all back-up for the user costs; i.e., how many packages were purchased by new aircraft and existing aircraft, whether the packages were of the original type or new systems, how many packages were retired and/or expired, etc.

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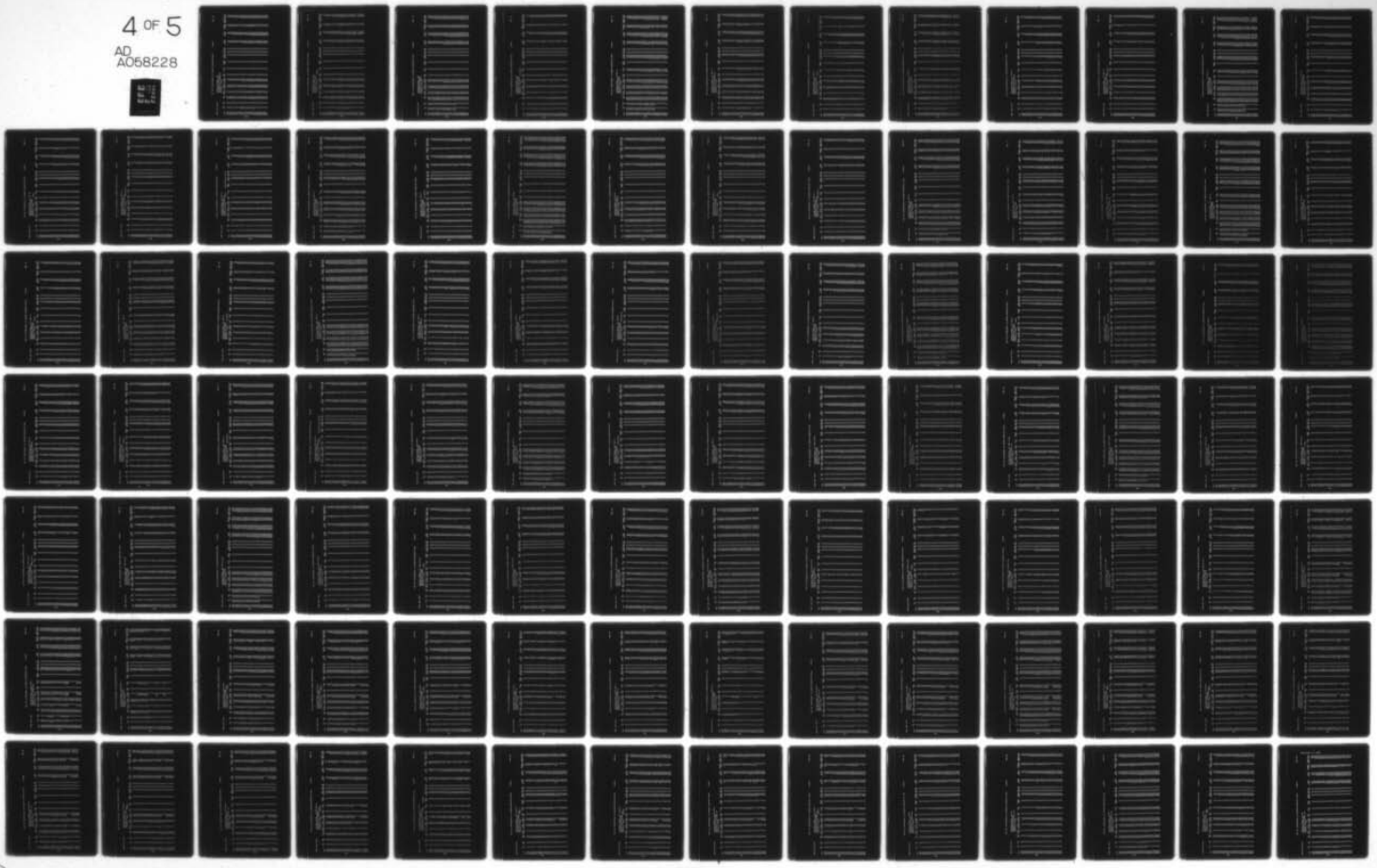
SHORT USER OUTPUT

AVIONICS CATEGORY: VFR
USER GROUP: PER-OTHER
AIRCRAFT TYPE: PISTON
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	2279.	919.	47337.	3523.	43814.	5348.	0.	0.	0.	0.	0.	0.	5348.	5348.	4862.	4862.
1979	2368.	947.	48758.	4459.	44299.	6974.	0.	0.	0.	0.	0.	0.	6874.	12222.	5661.	10543.
1980	3043.	975.	50826.	5578.	45248.	8731.	0.	0.	0.	0.	0.	0.	8731.	20953.	6560.	17102.
1981	3795.	1017.	53604.	6636.	46968.	10547.	0.	0.	0.	0.	0.	0.	10547.	31500.	7204.	24306.
1982	2559.	1074.	55089.	5627.	49462.	9082.	0.	0.	0.	0.	0.	0.	9082.	40582.	5639.	29945.
1983	1728.	1103.	55714.	5004.	50705.	8209.	0.	0.	0.	0.	0.	0.	8209.	48791.	4634.	34579.
1984	2298.	1113.	56891.	5775.	51115.	9612.	0.	0.	0.	0.	0.	0.	9612.	58403.	4933.	39512.
1985	2567.	1142.	58316.	6214.	52097.	10509.	0.	0.	0.	0.	0.	0.	10509.	68912.	4903.	44414.
1986	2854.	1164.	59836.	6498.	53338.	11150.	0.	0.	0.	0.	0.	0.	11150.	80062.	4729.	49143.
1987	2711.	1199.	61448.	6767.	54681.	11791.	0.	0.	0.	0.	0.	0.	11791.	91853.	4546.	53689.
1988	3536.	1231.	63873.	7781.	56092.	13767.	0.	0.	0.	0.	0.	0.	13767.	105619.	4825.	58514.
1989	3626.	1276.	66421.	8071.	58350.	10907.	0.	0.	0.	0.	0.	0.	10907.	116526.	3475.	61989.
1990	4120.	1328.	69213.	7251.	61962.	57275.	0.	0.	0.	0.	0.	0.	57275.	173801.	16591.	78550.
1991	4302.	1383.	72132.	8497.	63635.	60691.	0.	0.	0.	0.	0.	0.	60691.	234492.	15982.	94561.
1992	4457.	1444.	75175.	9679.	65496.	70200.	0.	0.	0.	0.	0.	0.	70200.	304691.	16805.	111367.
1993	4649.	1503.	78321.	8773.	69548.	64611.	0.	0.	0.	0.	0.	0.	64611.	369302.	14061.	125428.
1994	4877.	1567.	81631.	8319.	73312.	62212.	0.	0.	0.	0.	0.	0.	62212.	431514.	12308.	137736.
1995	5105.	1633.	85103.	9248.	75855.	70227.	0.	0.	0.	0.	0.	0.	70227.	501741.	12631.	150367.
1996	5359.	1702.	88760.	9876.	78884.	76153.	0.	0.	0.	0.	0.	0.	76153.	577894.	12452.	162819.
1997	5490.	1777.	92473.	10211.	82262.	79951.	0.	0.	0.	0.	0.	0.	79951.	657845.	11884.	174703.
1998	5877.	1851.	96499.	10793.	85706.	85812.	0.	0.	0.	0.	0.	0.	85812.	743657.	11596.	186299.
1999	6059.	1933.	100618.	17971.	82647.	145087.	0.	0.	0.	0.	0.	0.	145087.	888743.	17823.	204122.
2000	6052.	1933.	104737.	6052.	98685.	49614.	0.	0.	0.	0.	0.	0.	49614.	938357.	5541.	209663.
2001	0.	0.	104737.	5318.	99419.	44269.	0.	0.	0.	0.	0.	0.	44269.	982626.	4494.	214157.
2002	0.	0.	104737.	8497.	95240.	71824.	0.	0.	0.	0.	0.	0.	71824.	1054451.	6629.	220786.
2003	0.	0.	104737.	9679.	95058.	83078.	0.	0.	0.	0.	0.	0.	83078.	1137529.	6971.	227757.
2004	0.	0.	104737.	8775.	95964.	76463.	0.	0.	0.	0.	0.	0.	76463.	1213992.	5832.	233589.
2005	0.	0.	104737.	8319.	96418.	73625.	0.	0.	0.	0.	0.	0.	73625.	1287617.	5105.	238695.
2006	0.	0.	104737.	9248.	95489.	83110.	0.	0.	0.	0.	0.	0.	83110.	1370727.	5239.	243934.
2007	0.	0.	104737.	9575.	95861.	90123.	0.	0.	0.	0.	0.	0.	90123.	1460850.	5165.	249099.
2008	0.	0.	104737.	10211.	94526.	94618.	0.	0.	0.	0.	0.	0.	94618.	1555468.	4929.	254028.
2009	0.	0.	104737.	10793.	93944.	101554.	0.	0.	0.	0.	0.	0.	101554.	1657022.	4810.	258838.
2010	0.	0.	104737.	17971.	86766.	171703.	0.	0.	0.	0.	0.	0.	171703.	1828724.	7393.	266231.

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ECONOMIC REQUIREMENTS ANALYSIS OF CIVIL AIR NAVIGATION ALTERNAT--ETC(U)
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UNCLASSIFIED FAA-ASP-78-3-VOL-2 NL

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AD
A058228



SHORT USER OUTPUT

AVIONICS CATEGORY: VFR
USER GROUP: PER-OTHER
AIRCRAFT TYPE: HELICOPTER
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	8.	4.	128.	10.	118.	15.	0.	0.	0.	0.	0.	0.	15.	15.	14.	14.
1979	6.	3.	131.	11.	120.	17.	0.	0.	0.	0.	0.	0.	17.	32.	14.	28.
1980	7.	2.	136.	14.	122.	22.	0.	0.	0.	0.	0.	0.	22.	54.	16.	44.
1981	12.	3.	145.	20.	125.	32.	0.	0.	0.	0.	0.	0.	32.	86.	22.	66.
1982	7.	2.	150.	16.	134.	26.	0.	0.	0.	0.	0.	0.	26.	112.	16.	82.
1983	7.	5.	152.	14.	138.	23.	0.	0.	0.	0.	0.	0.	23.	135.	13.	95.
1984	4.	2.	154.	14.	140.	23.	0.	0.	0.	0.	0.	0.	23.	158.	12.	107.
1985	8.	2.	160.	19.	141.	32.	0.	0.	0.	0.	0.	0.	32.	190.	15.	122.
1986	5.	4.	161.	15.	146.	26.	0.	0.	0.	0.	0.	0.	26.	216.	11.	133.
1987	9.	3.	167.	20.	147.	35.	0.	0.	0.	0.	0.	0.	35.	251.	13.	146.
1988	0.	6.	161.	8.	153.	14.	0.	0.	0.	0.	0.	0.	14.	265.	5.	151.
1989	10.	1.	170.	19.	151.	34.	0.	0.	0.	0.	0.	0.	34.	299.	11.	162.
1990	12.	5.	177.	15.	159.	142.	0.	0.	0.	0.	0.	0.	142.	441.	41.	203.
1991	13.	4.	186.	23.	163.	164.	0.	0.	0.	0.	0.	0.	164.	605.	43.	247.
1992	12.	5.	193.	27.	166.	196.	0.	0.	0.	0.	0.	0.	196.	801.	47.	293.
1993	13.	3.	203.	26.	177.	191.	0.	0.	0.	0.	0.	0.	191.	993.	42.	335.
1994	12.	4.	211.	22.	189.	165.	0.	0.	0.	0.	0.	0.	165.	1157.	33.	368.
1995	14.	4.	221.	24.	197.	182.	0.	0.	0.	0.	0.	0.	182.	1339.	33.	400.
1996	14.	3.	232.	30.	202.	231.	0.	0.	0.	0.	0.	0.	231.	1571.	38.	438.
1997	14.	5.	241.	24.	217.	188.	0.	0.	0.	0.	0.	0.	188.	1759.	28.	466.
1998	16.	3.	254.	33.	221.	262.	0.	0.	0.	0.	0.	0.	262.	2021.	35.	502.
1999	16.	5.	265.	38.	227.	307.	0.	0.	0.	0.	0.	0.	307.	2328.	38.	539.
2000	16.	5.	276.	16.	260.	131.	0.	0.	0.	0.	0.	0.	131.	2459.	15.	554.
2001	0.	0.	276.	13.	263.	108.	0.	0.	0.	0.	0.	0.	108.	2567.	11.	565.
2002	0.	0.	276.	25.	253.	194.	0.	0.	0.	0.	0.	0.	194.	2762.	18.	583.
2003	0.	0.	276.	27.	249.	232.	0.	0.	0.	0.	0.	0.	232.	2993.	19.	602.
2004	0.	0.	276.	26.	250.	227.	0.	0.	0.	0.	0.	0.	227.	3220.	17.	620.
2005	0.	0.	276.	22.	254.	195.	0.	0.	0.	0.	0.	0.	195.	3415.	14.	633.
2006	0.	0.	276.	24.	252.	216.	0.	0.	0.	0.	0.	0.	216.	3630.	14.	647.
2007	0.	0.	276.	30.	246.	274.	0.	0.	0.	0.	0.	0.	274.	3904.	16.	662.
2008	0.	0.	276.	24.	252.	222.	0.	0.	0.	0.	0.	0.	222.	4127.	12.	674.
2009	0.	0.	276.	33.	243.	311.	0.	0.	0.	0.	0.	0.	311.	4437.	15.	689.
2010	0.	0.	276.	38.	238.	363.	0.	0.	0.	0.	0.	0.	363.	4800.	16.	704.

SHORT USER OUTPUT

AVIONICS CATEGORY: VFR
USER GROUP: PER-OTHER
AIRCRAFT TYPE: PISTON
REGION(S): CONUS ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	4.	2.	88.	6.	82.	9.	0.	0.	0.	0.	0.	0.	9.	9.	8.	8.
1979	6.	2.	92.	10.	82.	15.	0.	0.	0.	0.	0.	0.	15.	25.	13.	21.
1980	9.	4.	97.	11.	86.	17.	0.	0.	0.	0.	0.	0.	17.	42.	13.	34.
1981	14.	1.	104.	15.	89.	24.	0.	0.	0.	0.	0.	0.	24.	66.	16.	50.
1982	7.	4.	107.	10.	97.	16.	0.	0.	0.	0.	0.	0.	16.	82.	10.	60.
1983	6.	3.	110.	11.	99.	18.	0.	0.	0.	0.	0.	0.	18.	100.	10.	70.
1984	6.	3.	113.	12.	101.	20.	0.	0.	0.	0.	0.	0.	20.	120.	10.	81.
1985	5.	2.	116.	12.	104.	20.	0.	0.	0.	0.	0.	0.	20.	140.	9.	90.
1986	9.	4.	121.	14.	107.	24.	0.	0.	0.	0.	0.	0.	24.	164.	10.	100.
1987	6.	4.	123.	12.	111.	21.	0.	0.	0.	0.	0.	0.	21.	185.	8.	108.
1988	8.	1.	130.	17.	113.	30.	0.	0.	0.	0.	0.	0.	30.	215.	11.	119.
1989	11.	4.	137.	13.	124.	23.	0.	0.	0.	0.	0.	0.	23.	238.	7.	126.
1990	10.	3.	144.	17.	127.	134.	0.	0.	0.	0.	0.	0.	134.	373.	39.	165.
1991	10.	4.	150.	17.	133.	121.	0.	0.	0.	0.	0.	0.	121.	494.	32.	197.
1992	11.	2.	159.	24.	135.	174.	0.	0.	0.	0.	0.	0.	174.	668.	42.	239.
1993	13.	5.	167.	18.	149.	133.	0.	0.	0.	0.	0.	0.	133.	801.	29.	268.
1994	12.	3.	176.	20.	156.	150.	0.	0.	0.	0.	0.	0.	150.	950.	30.	297.
1995	14.	4.	186.	22.	164.	167.	0.	0.	0.	0.	0.	0.	167.	1117.	30.	327.
1996	12.	3.	195.	21.	174.	162.	0.	0.	0.	0.	0.	0.	162.	1279.	26.	354.
1997	14.	5.	204.	23.	181.	180.	0.	0.	0.	0.	0.	0.	180.	1459.	27.	381.
1998	17.	7.	214.	22.	192.	175.	0.	0.	0.	0.	0.	0.	175.	1634.	24.	404.
1999	17.	5.	226.	42.	184.	339.	0.	0.	0.	0.	0.	0.	339.	1973.	42.	446.
2000	17.	5.	238.	17.	221.	139.	0.	0.	0.	0.	0.	0.	139.	2113.	16.	462.
2001	0.	0.	238.	12.	226.	100.	0.	0.	0.	0.	0.	0.	100.	2213.	10.	472.
2002	0.	0.	238.	17.	221.	144.	0.	0.	0.	0.	0.	0.	144.	2356.	13.	485.
2003	0.	0.	238.	24.	214.	206.	0.	0.	0.	0.	0.	0.	206.	2562.	17.	502.
2004	0.	0.	238.	18.	220.	157.	0.	0.	0.	0.	0.	0.	157.	2719.	12.	514.
2005	0.	0.	238.	20.	218.	177.	0.	0.	0.	0.	0.	0.	177.	2896.	12.	526.
2006	0.	0.	238.	26.	210.	198.	0.	0.	0.	0.	0.	0.	198.	3094.	12.	539.
2007	0.	0.	238.	21.	217.	192.	0.	0.	0.	0.	0.	0.	192.	3286.	11.	550.
2008	0.	0.	238.	23.	215.	213.	0.	0.	0.	0.	0.	0.	213.	3499.	11.	561.
2009	0.	0.	238.	22.	216.	207.	0.	0.	0.	0.	0.	0.	207.	3706.	10.	571.
2010	0.	0.	238.	42.	196.	401.	0.	0.	0.	0.	0.	0.	401.	4107.	17.	588.

SHORT USER OUTPUT

AVIONICS CATEGORY: VFR
USER GROUP: PER-OTHER
AIRCRAFT TYPE: PISTON
REGION(S): ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	92.	31.	1613.	134.	1479.	203.	0.	0.	0.	0.	0.	0.	203.	203.	185.	185.
1979	124.	33.	1704.	194.	1510.	299.	0.	0.	0.	0.	0.	0.	299.	502.	247.	432.
1980	124.	32.	1796.	210.	1586.	329.	0.	0.	0.	0.	0.	0.	329.	831.	247.	679.
1981	156.	37.	1915.	249.	1666.	396.	0.	0.	0.	0.	0.	0.	396.	1227.	270.	949.
1982	127.	38.	2004.	229.	1775.	370.	0.	0.	0.	0.	0.	0.	370.	1597.	229.	1179.
1983	99.	41.	2062.	200.	1856.	338.	0.	0.	0.	0.	0.	0.	338.	1934.	191.	1369.
1984	99.	42.	2119.	212.	1907.	353.	0.	0.	0.	0.	0.	0.	353.	2287.	181.	1550.
1985	129.	42.	2206.	249.	1957.	421.	0.	0.	0.	0.	0.	0.	421.	2708.	196.	1747.
1986	130.	44.	2292.	254.	2038.	436.	0.	0.	0.	0.	0.	0.	436.	3144.	185.	1932.
1987	131.	46.	2377.	259.	2118.	451.	0.	0.	0.	0.	0.	0.	451.	3595.	174.	2106.
1988	170.	46.	2527.	331.	2196.	586.	0.	0.	0.	0.	0.	0.	586.	4180.	205.	2311.
1989	163.	50.	2660.	267.	2343.	480.	0.	0.	0.	0.	0.	0.	480.	4660.	153.	2464.
1990	202.	54.	2808.	342.	2466.	2701.	0.	0.	0.	0.	0.	0.	2701.	7362.	783.	3246.
1991	213.	57.	2964.	366.	2598.	2614.	0.	0.	0.	0.	0.	0.	2614.	9976.	688.	3935.
1992	225.	60.	3129.	414.	2715.	3003.	0.	0.	0.	0.	0.	0.	3003.	12978.	719.	4653.
1993	235.	63.	3301.	401.	2900.	2953.	0.	0.	0.	0.	0.	0.	2953.	15932.	643.	5296.
1994	250.	67.	3484.	384.	3095.	2909.	0.	0.	0.	0.	0.	0.	2909.	18841.	576.	5872.
1995	260.	69.	3675.	403.	3272.	3060.	0.	0.	0.	0.	0.	0.	3060.	21901.	550.	6422.
1996	277.	73.	3879.	453.	3426.	3493.	0.	0.	0.	0.	0.	0.	3493.	25394.	571.	6993.
1997	289.	77.	4091.	466.	3625.	3649.	0.	0.	0.	0.	0.	0.	3649.	29043.	542.	7536.
1998	309.	81.	4319.	487.	3832.	3872.	0.	0.	0.	0.	0.	0.	3872.	32915.	523.	8059.
1999	326.	88.	4557.	836.	3721.	6749.	0.	0.	0.	0.	0.	0.	6749.	39664.	829.	8888.
2000	326.	88.	4795.	326.	4469.	2673.	0.	0.	0.	0.	0.	0.	2673.	42337.	298.	9186.
2001	0.	0.	4795.	254.	4541.	2114.	0.	0.	0.	0.	0.	0.	2114.	44451.	215.	9401.
2002	0.	0.	4795.	366.	4429.	3094.	0.	0.	0.	0.	0.	0.	3094.	47545.	286.	9687.
2003	0.	0.	4795.	414.	4381.	3553.	0.	0.	0.	0.	0.	0.	3553.	51098.	298.	9985.
2004	0.	0.	4795.	401.	4394.	3495.	0.	0.	0.	0.	0.	0.	3495.	54593.	267.	10251.
2005	0.	0.	4795.	389.	4406.	3443.	0.	0.	0.	0.	0.	0.	3443.	58036.	239.	10490.
2006	0.	0.	4795.	403.	4392.	3622.	0.	0.	0.	0.	0.	0.	3622.	61658.	228.	10718.
2007	0.	0.	4795.	453.	4342.	4134.	0.	0.	0.	0.	0.	0.	4134.	65792.	237.	10955.
2008	0.	0.	4795.	466.	4329.	4318.	0.	0.	0.	0.	0.	0.	4318.	70110.	225.	11180.
2009	0.	0.	4795.	487.	4308.	4582.	0.	0.	0.	0.	0.	0.	4582.	74692.	217.	11397.
2010	0.	0.	4795.	836.	3959.	7988.	0.	0.	0.	0.	0.	0.	7988.	82679.	344.	11741.

SHORT USER OUTPUT

AVIONICS CATEGORY: VFR
USER GROUP: PER-OTHER
AIRCRAFT TYPE: PISTON
REGION(S): ALASKA AKA OFF-SH

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	0.	0.	5.	0.	10.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1979	0.	0.	5.	2.	8.	8.	0.	0.	0.	0.	0.	0.	8.	8.	7.	7.
1980	0.	0.	5.	0.	10.	0.	0.	0.	0.	0.	0.	0.	0.	8.	0.	7.
1981	2.	0.	7.	4.	10.	16.	0.	0.	0.	0.	0.	0.	16.	25.	11.	18.
1982	0.	0.	7.	2.	12.	8.	0.	0.	0.	0.	0.	0.	8.	33.	5.	23.
1983	0.	0.	7.	0.	14.	0.	0.	0.	0.	0.	0.	0.	0.	33.	0.	23.
1984	0.	0.	7.	2.	12.	8.	0.	0.	0.	0.	0.	0.	8.	41.	4.	27.
1985	0.	0.	7.	0.	14.	0.	0.	0.	0.	0.	0.	0.	0.	41.	0.	27.
1986	0.	0.	7.	2.	12.	8.	0.	0.	0.	0.	0.	0.	8.	50.	4.	31.
1987	2.	1.	8.	4.	12.	17.	0.	0.	0.	0.	0.	0.	17.	66.	6.	37.
1988	0.	0.	8.	0.	16.	0.	0.	0.	0.	0.	0.	0.	0.	66.	0.	37.
1989	0.	0.	8.	0.	16.	0.	0.	0.	0.	0.	0.	0.	0.	66.	0.	37.
1990	1.	0.	9.	2.	14.	16.	0.	0.	0.	0.	0.	0.	16.	82.	5.	42.
1991	0.	0.	9.	0.	16.	0.	0.	0.	0.	0.	0.	0.	0.	82.	0.	42.
1992	2.	0.	11.	4.	12.	29.	0.	0.	0.	0.	0.	0.	29.	111.	7.	49.
1993	0.	0.	11.	1.	14.	7.	0.	0.	0.	0.	0.	0.	7.	118.	2.	51.
1994	1.	1.	11.	1.	13.	7.	0.	0.	0.	0.	0.	0.	7.	126.	1.	52.
1995	1.	0.	12.	1.	14.	8.	0.	0.	0.	0.	0.	0.	8.	134.	1.	53.
1996	0.	0.	12.	0.	15.	0.	0.	0.	0.	0.	0.	0.	0.	134.	0.	53.
1997	1.	0.	13.	2.	13.	16.	0.	0.	0.	0.	0.	0.	16.	149.	2.	56.
1998	2.	0.	15.	4.	11.	32.	0.	0.	0.	0.	0.	0.	32.	181.	4.	60.
1999	0.	0.	15.	0.	15.	0.	0.	0.	0.	0.	0.	0.	0.	181.	0.	60.
2000	0.	0.	15.	0.	15.	0.	0.	0.	0.	0.	0.	0.	0.	181.	0.	60.
2001	0.	0.	15.	2.	13.	17.	0.	0.	0.	0.	0.	0.	17.	198.	2.	62.
2002	0.	0.	15.	0.	15.	0.	0.	0.	0.	0.	0.	0.	0.	198.	0.	62.
2003	0.	0.	15.	4.	11.	34.	0.	0.	0.	0.	0.	0.	34.	232.	3.	65.
2004	0.	0.	15.	1.	14.	9.	0.	0.	0.	0.	0.	0.	9.	241.	1.	65.
2005	0.	0.	15.	1.	14.	9.	0.	0.	0.	0.	0.	0.	9.	250.	1.	66.
2006	0.	0.	15.	1.	14.	9.	0.	0.	0.	0.	0.	0.	9.	259.	1.	66.
2007	0.	0.	15.	0.	15.	0.	0.	0.	0.	0.	0.	0.	0.	259.	0.	66.
2008	0.	0.	15.	2.	13.	19.	0.	0.	0.	0.	0.	0.	19.	277.	1.	67.
2009	0.	0.	15.	4.	11.	38.	0.	0.	0.	0.	0.	0.	38.	315.	2.	69.
2010	0.	0.	15.	0.	15.	0.	0.	0.	0.	0.	0.	0.	0.	315.	0.	69.

SHOPT USER OUTPUT

AVIONICS CATEGORY: LOW COST GA
USER GROUP: AIR TAXI
AIRCRAFT TYPE: PISTON
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	186.	70.	3608.	280.	3328.	850.	0.	85.	0.	1037.	0.	0.	226.	226.	205.	205.
1979	142.	73.	3727.	350.	3377.	1079.	0.	108.	0.	1060.	0.	0.	420.	646.	347.	552.
1980	248.	74.	3901.	441.	3460.	1381.	0.	138.	0.	1117.	0.	0.	662.	1308.	497.	1050.
1981	304.	77.	4128.	520.	3608.	1653.	0.	165.	0.	1204.	0.	0.	862.	2169.	589.	1638.
1982	216.	85.	4259.	445.	3814.	1436.	0.	144.	0.	1252.	0.	0.	641.	2811.	398.	2037.
1983	149.	84.	4323.	397.	3926.	1301.	0.	130.	0.	1274.	0.	0.	509.	3320.	287.	2324.
1984	194.	89.	4428.	454.	3974.	1511.	0.	151.	0.	1316.	0.	0.	676.	3995.	347.	2670.
1985	216.	88.	4556.	493.	4063.	1646.	0.	167.	0.	1433.	0.	0.	755.	4750.	352.	3022.
1986	231.	91.	4696.	518.	4178.	1778.	0.	178.	0.	1532.	0.	0.	803.	5553.	341.	3363.
1987	237.	93.	4840.	535.	4305.	1864.	0.	186.	0.	1601.	0.	0.	845.	6398.	326.	3689.
1988	391.	100.	5131.	698.	4433.	2470.	0.	247.	0.	1718.	0.	0.	1329.	7728.	466.	4155.
1989	328.	102.	5357.	500.	4851.	1818.	0.	182.	0.	1773.	0.	0.	715.	8442.	228.	4383.
1990	352.	106.	5603.	596.	5007.	9416.	0.	942.	0.	2932.	0.	0.	6949.	15392.	2013.	6396.
1991	373.	113.	5863.	701.	5162.	10014.	0.	1001.	0.	4147.	0.	0.	6856.	22248.	1805.	8201.
1992	386.	115.	6134.	791.	5343.	11474.	0.	1147.	0.	5548.	0.	0.	7442.	29690.	1781.	9983.
1993	404.	122.	6416.	727.	5689.	10708.	0.	1071.	0.	6823.	0.	0.	6089.	35779.	1325.	11308.
1994	425.	128.	6713.	694.	6019.	10380.	0.	1038.	0.	8040.	0.	0.	5161.	40940.	1021.	12329.
1995	444.	135.	7022.	763.	6259.	11588.	0.	1159.	0.	9343.	0.	0.	5571.	46511.	1002.	13331.
1996	468.	141.	7349.	820.	6529.	12646.	0.	1265.	0.	10889.	0.	0.	5719.	52230.	935.	14266.
1997	477.	144.	7682.	851.	6831.	13326.	0.	1333.	0.	11448.	0.	0.	6041.	58271.	898.	15164.
1998	516.	155.	8043.	896.	7147.	14248.	0.	1425.	0.	12053.	0.	0.	6555.	64826.	886.	16050.
1999	532.	162.	8413.	1574.	6839.	25415.	0.	2541.	0.	14044.	0.	0.	15570.	80397.	1913.	17962.
2000	532.	162.	8783.	532.	8251.	8723.	0.	872.	0.	13761.	0.	0.	695.	81091.	78.	18040.
2001	0.	0.	8783.	434.	8349.	7226.	0.	723.	0.	13310.	0.	0.	-418.	80673.	-42.	17998.
2002	0.	0.	8783.	701.	8082.	11851.	0.	1185.	0.	13348.	0.	0.	3725.	84398.	344.	18341.
2003	0.	0.	8783.	791.	7992.	13579.	0.	1358.	0.	13481.	0.	0.	5211.	89609.	437.	18779.
2004	0.	0.	8783.	727.	8056.	12673.	0.	1267.	0.	13388.	0.	0.	4444.	94053.	339.	19118.
2005	0.	0.	8783.	694.	8089.	12264.	0.	1226.	0.	13107.	0.	0.	4240.	98293.	294.	19412.
2006	0.	0.	8783.	763.	8020.	13714.	0.	1371.	0.	11436.	0.	0.	6396.	104689.	403.	19815.
2007	0.	0.	8783.	820.	7963.	14966.	0.	1497.	0.	12327.	0.	0.	7059.	111748.	405.	20219.
2008	0.	0.	8783.	851.	7932.	15771.	0.	1577.	0.	13548.	0.	0.	7149.	118897.	372.	20592.
2009	0.	0.	8783.	896.	7887.	16861.	0.	1686.	0.	14264.	0.	0.	7758.	126655.	367.	20959.
2010	0.	0.	8783.	1574.	7209.	30077.	0.	3008.	0.	16621.	0.	0.	18427.	145082.	793.	21753.

SHORT USEP OUTPUT

AVIONICS CATEGORY: LOW COST GA
USER GROUP: AIR TAXI
AIRCRAFT TYPE: HELICOPTER
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	7.	2.	117.	10.	107.	30.	0.	3.	0.	34.	0.	0.	10.	10.	9.	9.
1979	4.	2.	119.	10.	109.	31.	0.	3.	0.	34.	0.	0.	10.	20.	8.	17.
1980	6.	3.	124.	13.	111.	41.	0.	4.	0.	35.	0.	0.	18.	38.	14.	31.
1981	9.	2.	131.	17.	114.	54.	0.	5.	0.	38.	0.	0.	29.	67.	20.	51.
1982	8.	3.	136.	15.	121.	46.	0.	5.	0.	40.	0.	0.	23.	90.	14.	65.
1983	4.	2.	138.	12.	126.	39.	0.	4.	0.	40.	0.	0.	14.	104.	8.	73.
1984	5.	3.	140.	14.	128.	47.	0.	5.	0.	41.	0.	0.	20.	124.	10.	83.
1985	8.	3.	145.	16.	129.	54.	0.	5.	0.	45.	0.	0.	25.	150.	12.	95.
1986	5.	3.	147.	14.	133.	48.	0.	5.	0.	47.	0.	0.	19.	168.	8.	103.
1987	8.	3.	152.	18.	134.	63.	0.	6.	0.	50.	0.	0.	30.	199.	12.	115.
1988	0.	5.	147.	8.	139.	28.	0.	3.	0.	47.	0.	0.	1.	200.	0.	115.
1989	10.	3.	154.	17.	137.	61.	0.	6.	0.	49.	0.	0.	30.	230.	9.	125.
1990	10.	3.	161.	17.	144.	269.	0.	27.	0.	81.	0.	0.	199.	429.	58.	182.
1991	10.	3.	168.	20.	148.	286.	0.	29.	0.	116.	0.	0.	197.	626.	52.	234.
1992	11.	3.	176.	25.	151.	363.	0.	36.	0.	160.	0.	0.	243.	869.	58.	293.
1993	12.	4.	184.	23.	161.	339.	0.	34.	0.	201.	0.	0.	200.	1070.	44.	336.
1994	12.	4.	192.	20.	172.	299.	0.	30.	0.	235.	0.	0.	147.	1217.	29.	365.
1995	13.	4.	201.	23.	178.	349.	0.	35.	0.	281.	0.	0.	168.	1385.	30.	396.
1996	13.	4.	210.	25.	185.	386.	0.	39.	0.	327.	0.	0.	177.	1562.	29.	424.
1997	12.	4.	218.	22.	196.	345.	0.	34.	0.	338.	0.	0.	134.	1696.	20.	444.
1998	16.	4.	230.	30.	200.	477.	0.	48.	0.	365.	0.	0.	239.	1936.	32.	477.
1999	15.	5.	240.	35.	205.	565.	0.	57.	0.	394.	0.	0.	304.	2239.	37.	514.
2000	15.	5.	250.	15.	235.	246.	0.	25.	0.	381.	0.	0.	23.	2263.	3.	517.
2001	0.	0.	250.	12.	238.	200.	0.	20.	0.	367.	0.	0.	-11.	2252.	-1.	516.
2002	0.	0.	250.	20.	230.	338.	0.	34.	0.	365.	0.	0.	114.	2365.	11.	526.
2003	0.	0.	250.	25.	225.	429.	0.	43.	0.	371.	0.	0.	193.	2559.	16.	542.
2004	0.	0.	250.	23.	227.	401.	0.	40.	0.	379.	0.	0.	164.	2723.	12.	555.
2005	0.	0.	250.	20.	230.	354.	0.	35.	0.	362.	0.	0.	130.	2853.	9.	564.
2006	0.	0.	250.	23.	227.	413.	0.	41.	0.	340.	0.	0.	195.	3048.	12.	576.
2007	0.	0.	250.	25.	225.	456.	0.	46.	0.	370.	0.	0.	218.	3267.	13.	589.
2008	0.	0.	250.	22.	228.	408.	0.	41.	0.	400.	0.	0.	159.	3426.	8.	597.
2009	0.	0.	250.	30.	220.	565.	0.	56.	0.	432.	0.	0.	283.	3709.	13.	610.
2010	0.	0.	250.	35.	215.	669.	0.	67.	0.	467.	0.	0.	359.	4068.	15.	626.

SHORT USER OUTPUT

AVIONICS CATEGORY: LOW COST GA
USER GROUP: AIR TAXI
AIRCRAFT TYPE: PISTON
REGION(S): CONUS ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	2.	1.	22.	2.	20.	6.	0.	1.	0.	6.	0.	0.	2.	2.	2.	2.
1979	1.	0.	23.	2.	21.	6.	0.	1.	0.	6.	0.	0.	2.	4.	2.	4.
1980	2.	1.	24.	3.	21.	9.	0.	1.	0.	7.	0.	0.	5.	9.	4.	8.
1981	2.	0.	26.	4.	22.	13.	0.	1.	0.	8.	0.	0.	7.	17.	5.	13.
1982	1.	0.	27.	3.	24.	10.	0.	1.	0.	8.	0.	0.	4.	21.	3.	15.
1983	1.	1.	27.	2.	25.	7.	0.	1.	0.	8.	0.	0.	2.	23.	1.	16.
1984	1.	0.	28.	3.	25.	10.	0.	1.	0.	9.	0.	0.	4.	27.	2.	19.
1985	2.	1.	29.	3.	26.	10.	0.	1.	0.	9.	0.	0.	4.	32.	2.	21.
1986	1.	0.	30.	3.	27.	10.	0.	1.	0.	10.	0.	0.	4.	36.	2.	22.
1987	1.	1.	30.	3.	27.	10.	0.	1.	0.	10.	0.	0.	4.	40.	2.	24.
1988	3.	0.	33.	5.	28.	18.	0.	2.	0.	11.	0.	0.	10.	50.	4.	28.
1989	3.	2.	34.	3.	31.	11.	0.	1.	0.	11.	0.	0.	4.	54.	1.	29.
1990	2.	0.	36.	4.	32.	63.	0.	6.	0.	19.	0.	0.	47.	101.	14.	43.
1991	2.	1.	37.	4.	33.	57.	0.	6.	0.	26.	0.	0.	38.	140.	10.	53.
1992	4.	2.	39.	6.	33.	87.	0.	9.	0.	37.	0.	0.	59.	199.	14.	67.
1993	2.	0.	41.	5.	36.	74.	0.	7.	0.	46.	0.	0.	43.	241.	9.	76.
1994	2.	1.	42.	3.	39.	45.	0.	4.	0.	51.	0.	0.	14.	255.	3.	79.
1995	4.	1.	45.	6.	39.	91.	0.	9.	0.	61.	0.	0.	50.	306.	9.	88.
1996	3.	1.	47.	5.	42.	77.	0.	8.	0.	71.	0.	0.	33.	338.	5.	93.
1997	3.	0.	50.	6.	44.	94.	0.	9.	0.	75.	0.	0.	46.	384.	7.	100.
1998	5.	2.	53.	6.	47.	95.	0.	10.	0.	80.	0.	0.	44.	428.	6.	106.
1999	3.	1.	55.	10.	45.	161.	0.	16.	0.	91.	0.	0.	98.	526.	12.	118.
2000	3.	1.	57.	3.	54.	49.	0.	5.	0.	88.	0.	0.	-1.	525.	-0.	118.
2001	0.	0.	57.	3.	54.	50.	0.	5.	0.	88.	0.	0.	-1.	524.	-0.	118.
2002	0.	0.	57.	4.	53.	68.	0.	7.	0.	85.	0.	0.	17.	540.	2.	119.
2003	0.	0.	57.	6.	51.	103.	0.	10.	0.	89.	0.	0.	47.	587.	4.	123.
2004	0.	0.	57.	5.	52.	87.	0.	9.	0.	88.	0.	0.	33.	620.	3.	126.
2005	0.	0.	57.	3.	54.	53.	0.	5.	0.	82.	0.	0.	5.	625.	0.	126.
2006	0.	0.	57.	6.	51.	108.	0.	11.	0.	74.	0.	0.	59.	684.	4.	130.
2007	0.	0.	57.	5.	52.	91.	0.	9.	0.	80.	0.	0.	41.	724.	2.	132.
2008	0.	0.	57.	6.	51.	111.	0.	11.	0.	89.	0.	0.	54.	778.	3.	135.
2009	0.	0.	57.	6.	51.	113.	0.	11.	0.	95.	0.	0.	52.	830.	2.	137.
2010	0.	0.	57.	10.	47.	191.	0.	19.	0.	108.	0.	0.	116.	946.	5.	142.

SHORT USER OUTPUT

AVIONICS CATEGORY: LOW COST GA
USER GROUP: AIR TAXI
AIRCRAFT TYPE: PISTON
REGION(S): ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	12.	4.	203.	17.	186.	52.	0.	5.	0.	58.	0.	0.	16.	16.	15.	15.
1979	15.	4.	214.	24.	196.	74.	0.	7.	0.	62.	0.	0.	34.	50.	28.	43.
1980	16.	4.	226.	27.	199.	85.	0.	8.	0.	66.	0.	0.	42.	92.	31.	74.
1981	18.	4.	240.	30.	210.	95.	0.	10.	0.	71.	0.	0.	49.	141.	33.	108.
1982	16.	5.	251.	29.	222.	94.	0.	9.	0.	76.	0.	0.	45.	186.	28.	135.
1983	13.	5.	259.	26.	233.	85.	0.	9.	0.	79.	0.	0.	36.	221.	20.	156.
1984	12.	5.	266.	27.	239.	90.	0.	9.	0.	82.	0.	0.	38.	259.	20.	175.
1985	17.	6.	277.	31.	246.	105.	0.	10.	0.	90.	0.	0.	48.	307.	22.	197.
1986	16.	5.	288.	32.	256.	110.	0.	11.	0.	95.	0.	0.	50.	357.	21.	218.
1987	17.	6.	299.	33.	266.	115.	0.	11.	0.	99.	0.	0.	52.	409.	20.	238.
1988	24.	6.	317.	41.	276.	145.	0.	15.	0.	106.	0.	0.	75.	484.	26.	265.
1989	23.	6.	334.	34.	300.	122.	0.	12.	0.	110.	0.	0.	53.	537.	17.	282.
1990	26.	7.	353.	43.	310.	679.	0.	68.	0.	195.	0.	0.	510.	1047.	148.	429.
1991	27.	7.	373.	47.	326.	671.	0.	67.	0.	278.	0.	0.	460.	1506.	121.	550.
1992	28.	8.	393.	50.	343.	725.	0.	73.	0.	367.	0.	0.	462.	1968.	111.	661.
1993	30.	8.	415.	51.	364.	751.	0.	75.	0.	458.	0.	0.	438.	2406.	95.	756.
1994	31.	8.	438.	49.	389.	732.	0.	73.	0.	547.	0.	0.	375.	2781.	74.	830.
1995	32.	8.	462.	51.	411.	775.	0.	77.	0.	637.	0.	0.	366.	3147.	66.	896.
1996	36.	10.	488.	57.	431.	879.	0.	88.	0.	745.	0.	0.	404.	3551.	66.	962.
1997	35.	9.	514.	58.	456.	908.	0.	91.	0.	778.	0.	0.	413.	3964.	61.	1024.
1998	40.	11.	543.	62.	481.	986.	0.	99.	0.	822.	0.	0.	460.	4424.	62.	1086.
1999	40.	10.	573.	105.	485.	1095.	0.	170.	0.	961.	0.	0.	1026.	5450.	126.	1212.
2000	40.	10.	603.	40.	563.	656.	0.	66.	0.	947.	0.	0.	98.	5547.	11.	1223.
2001	0.	0.	603.	35.	570.	549.	0.	55.	0.	921.	0.	0.	15.	5563.	2.	1224.
2002	0.	0.	603.	47.	556.	795.	0.	79.	0.	924.	0.	0.	235.	5797.	22.	1246.
2003	0.	0.	603.	50.	553.	858.	0.	86.	0.	921.	0.	0.	294.	6091.	25.	1271
2004	0.	0.	603.	51.	552.	889.	0.	89.	0.	918.	0.	0.	323.	6414.	25.	1295
2005	0.	0.	603.	49.	554.	867.	0.	87.	0.	901.	0.	0.	312.	6725.	22.	1317
2006	0.	0.	603.	51.	552.	917.	0.	92.	0.	790.	0.	0.	814.	7139.	26.	1343
2007	0.	0.	603.	57.	546.	1040.	0.	104.	0.	845.	0.	0.	497.	7636.	28.	1371.
2008	0.	0.	603.	58.	543.	1075.	0.	107.	0.	920.	0.	0.	489.	8125.	25.	1397.
2009	0.	0.	603.	62.	541.	1167.	0.	117.	0.	973.	0.	0.	544.	8669.	26.	1423.
2010	0.	0.	603.	105.	498.	2006.	0.	201.	0.	1137.	0.	0.	1214.	9884.	52.	1475.

SHORT USER OUTPUT

AVIONICS CATEGORY: LOW COST GA
USER GROUP: AIR TAXI
AIRCRAFT TYPE: HELICOPTER
REGION(S): ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	1.	0.	22.	2.	20.	6.	0.	1.	0.	6.	0.	0.	2.	2.	2.	2.
1979	1.	0.	23.	2.	21.	6.	0.	1.	0.	6.	0.	0.	2.	4.	2.	4.
1980	2.	0.	25.	4.	21.	13.	0.	1.	0.	7.	0.	0.	7.	12.	6.	10.
1981	2.	1.	26.	3.	23.	10.	0.	1.	0.	8.	0.	0.	5.	16.	3.	13.
1982	1.	0.	27.	3.	24.	10.	0.	1.	0.	8.	0.	0.	4.	21.	3.	15.
1983	2.	0.	29.	4.	25.	13.	0.	1.	0.	9.	0.	0.	7.	28.	4.	19.
1984	1.	1.	29.	2.	27.	7.	0.	1.	0.	9.	0.	0.	1.	29.	1.	20.
1985	2.	0.	31.	4.	27.	14.	0.	1.	0.	10.	0.	0.	7.	36.	3.	23.
1986	1.	0.	32.	3.	29.	10.	0.	1.	0.	11.	0.	0.	4.	40.	2.	25.
1987	1.	0.	33.	4.	29.	14.	0.	1.	0.	11.	0.	0.	7.	47.	3.	27.
1988	1.	1.	33.	2.	31.	7.	0.	1.	0.	11.	0.	0.	1.	47.	0.	28.
1989	3.	1.	35.	4.	31.	14.	0.	1.	0.	11.	0.	0.	7.	55.	2.	30.
1990	3.	1.	37.	4.	33.	63.	0.	6.	0.	18.	0.	0.	47.	102.	14.	44.
1991	3.	1.	39.	6.	33.	86.	0.	9.	0.	30.	0.	0.	62.	163.	16.	60.
1992	4.	1.	42.	6.	36.	87.	0.	9.	0.	40.	0.	0.	57.	221.	14.	74.
1993	4.	1.	45.	6.	39.	88.	0.	9.	0.	51.	0.	0.	53.	274.	11.	85.
1994	3.	1.	47.	6.	41.	90.	0.	9.	0.	62.	0.	0.	48.	322.	10.	95.
1995	4.	1.	50.	5.	45.	76.	0.	8.	0.	72.	0.	0.	31.	353.	6.	100.
1996	4.	1.	53.	7.	46.	108.	0.	11.	0.	85.	0.	0.	53.	406.	9.	109.
1997	4.	1.	56.	6.	50.	94.	0.	9.	0.	90.	0.	0.	38.	444.	6.	114.
1998	5.	1.	60.	8.	52.	127.	0.	13.	0.	96.	0.	0.	65.	508.	9.	123.
1999	6.	2.	64.	10.	54.	161.	0.	16.	0.	106.	0.	0.	90.	598.	11.	134.
2000	6.	2.	68.	6.	62.	98.	0.	10.	0.	108.	0.	0.	32.	631.	4.	138.
2001	0.	0.	65.	2.	66.	33.	0.	3.	0.	100.	0.	0.	22.	609.	-2.	136.
2002	0.	0.	68.	6.	62.	101.	0.	10.	0.	103.	0.	0.	38.	646.	3.	139.
2003	0.	0.	68.	6.	62.	103.	0.	10.	0.	103.	0.	0.	39.	686.	3.	142.
2004	0.	0.	68.	6.	62.	105.	0.	10.	0.	104.	0.	0.	40.	726.	3.	145.
2005	0.	0.	68.	6.	62.	106.	0.	11.	0.	101.	0.	0.	43.	769.	3.	148.
2006	0.	0.	68.	5.	63.	90.	0.	9.	0.	91.	0.	0.	34.	802.	2.	151.
2007	0.	0.	68.	7.	61.	128.	0.	13.	0.	95.	0.	0.	65.	868.	4.	154.
2008	0.	0.	68.	6.	62.	111.	0.	11.	0.	106.	0.	0.	45.	913.	2.	157.
2009	0.	0.	68.	8.	60.	151.	0.	15.	0.	113.	0.	0.	77.	989.	4.	160.
2010	0.	0.	68.	10.	58.	191.	0.	19.	0.	126.	0.	0.	107.	1096.	5.	165.

SHORT USER OUTPUT

AVIONICS CATEGORY: LOW COST GA
USER GROUP: AIR TAXI
AIRCRAFT TYPE: HELICOPTER
REGION(S): ALASKA AKA OFF-SH

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	1.	1.	9.	2.	16.	17.	0.	2.	0.	16.	0.	0.	7.	7.	6.	6.
1979	1.	0.	10.	2.	18.	17.	0.	2.	0.	16.	0.	0.	7.	13.	5.	11.
1980	1.	1.	10.	2.	18.	17.	0.	2.	0.	16.	0.	0.	6.	20.	5.	16.
1981	1.	0.	11.	2.	20.	16.	0.	2.	0.	16.	0.	0.	6.	26.	4.	21.
1982	1.	0.	12.	4.	20.	33.	0.	3.	0.	19.	0.	0.	20.	46.	12.	33.
1983	1.	1.	12.	2.	22.	16.	0.	2.	0.	19.	0.	0.	5.	51.	3.	36.
1984	1.	0.	13.	4.	22.	33.	0.	3.	0.	21.	0.	0.	19.	69.	10.	45.
1985	1.	1.	13.	2.	24.	17.	0.	2.	0.	21.	0.	0.	4.	73.	2.	47.
1986	1.	1.	13.	2.	24.	17.	0.	2.	0.	21.	0.	0.	4.	77.	2.	49.
1987	1.	0.	14.	4.	24.	34.	0.	3.	0.	24.	0.	0.	18.	95.	7.	56.
1988	0.	0.	14.	2.	26.	17.	0.	2.	0.	24.	0.	0.	3.	98.	1.	57.
1989	1.	0.	15.	4.	26.	34.	0.	3.	0.	24.	0.	0.	18.	116.	6.	62.
1990	1.	0.	16.	2.	28.	32.	0.	3.	0.	26.	0.	0.	15.	131.	4.	67.
1991	1.	0.	17.	2.	28.	29.	0.	3.	0.	25.	0.	0.	13.	143.	3.	70.
1992	2.	1.	18.	2.	28.	29.	0.	3.	0.	27.	0.	0.	12.	155.	3.	73.
1993	1.	0.	19.	5.	26.	44.	0.	4.	0.	31.	0.	0.	24.	179.	5.	78.
1994	1.	0.	20.	2.	27.	30.	0.	3.	0.	31.	0.	0.	11.	190.	2.	80.
1995	2.	0.	22.	4.	25.	61.	0.	6.	0.	37.	0.	0.	36.	226.	6.	87.
1996	2.	1.	23.	2.	27.	31.	0.	3.	0.	36.	0.	0.	9.	234.	1.	88.
1997	1.	0.	24.	2.	27.	31.	0.	3.	0.	36.	0.	0.	9.	244.	1.	89.
1998	2.	1.	25.	3.	25.	48.	0.	5.	0.	39.	0.	0.	23.	266.	3.	92.
1999	2.	0.	27.	5.	22.	81.	0.	8.	0.	46.	0.	0.	48.	315.	6.	98.
2000	2.	0.	29.	2.	27.	33.	0.	3.	0.	45.	0.	0.	6.	321.	1.	99.
2001	0.	0.	29.	2.	27.	33.	0.	3.	0.	45.	0.	0.	6.	327.	1.	100.
2002	0.	0.	29.	2.	27.	34.	0.	3.	0.	42.	0.	0.	9.	336.	1.	101.
2003	0.	0.	29.	2.	27.	34.	0.	3.	0.	42.	0.	0.	9.	345.	1.	101.
2004	0.	0.	29.	3.	26.	52.	0.	5.	0.	45.	0.	0.	24.	369.	2.	103.
2005	0.	0.	29.	2.	27.	35.	0.	4.	0.	43.	0.	0.	9.	378.	1.	104.
2006	0.	0.	29.	4.	25.	72.	0.	7.	0.	42.	0.	0.	43.	421.	3.	107.
2007	0.	0.	29.	2.	27.	37.	0.	4.	0.	43.	0.	0.	11.	432.	1.	107.
2008	0.	0.	29.	2.	27.	37.	0.	4.	0.	43.	0.	0.	11.	443.	1.	108.
2009	0.	0.	29.	3.	26.	56.	0.	6.	0.	46.	0.	0.	27.	470.	1.	109.
2010	0.	0.	29.	5.	24.	96.	0.	10.	0.	55.	0.	0.	57.	527.	2.	111.

SHORT USER OUTPUT

AVIONICS CATEGORY: LOW COST GA
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: PISTON
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	1177.	465.	23891.	1805.	22088.	5474.	0.	547.	0.	6860.	0.	0.	1359.	1359.	1236.	1236.
1979	1231.	476.	24644.	2280.	22360.	7048.	0.	705.	0.	6993.	0.	0.	2707.	4066.	2237.	3473.
1980	1572.	493.	25725.	2849.	22876.	8919.	0.	892.	0.	7335.	0.	0.	4213.	8279.	3165.	6638.
1981	1905.	518.	27172.	3392.	23780.	10783.	0.	1078.	0.	7889.	0.	0.	5602.	13881.	3826.	10464.
1982	1335.	541.	27966.	2882.	25084.	9303.	0.	930.	0.	8179.	0.	0.	4120.	18000.	2558.	13022.
1983	920.	501.	28325.	2569.	25750.	8420.	0.	842.	0.	8289.	0.	0.	3268.	21269.	1845.	14867.
1984	1205.	567.	28963.	2956.	26007.	9838.	0.	984.	0.	8541.	0.	0.	4413.	25682.	2265.	17132.
1985	1346.	577.	29732.	3187.	26545.	10771.	0.	1077.	0.	9297.	0.	0.	4859.	30541.	2267.	19399.
1986	1423.	596.	30559.	3336.	27223.	11448.	0.	1145.	0.	9926.	0.	0.	5142.	35683.	2181.	21579.
1987	1480.	611.	31428.	3469.	27960.	12085.	0.	1209.	0.	10378.	0.	0.	5480.	41163.	2113.	23692.
1988	2136.	630.	32934.	4206.	28728.	14883.	0.	1488.	0.	10964.	0.	0.	7693.	48857.	2696.	26388.
1989	2022.	654.	34297.	3100.	31131.	11376.	0.	1138.	0.	11260.	0.	0.	4383.	53239.	1397.	27785.
1990	2182.	683.	35796.	3785.	32011.	59795.	0.	5979.	0.	18600.	0.	0.	44144.	97383.	12787.	40572.
1991	2291.	721.	37366.	4419.	32947.	63126.	0.	6313.	0.	26212.	0.	0.	43183.	140566.	11372.	51943.
1992	2382.	744.	39004.	5030.	33974.	72963.	0.	7296.	0.	35097.	0.	0.	47417.	187983.	11351.	63294.
1993	2477.	780.	40701.	4579.	36122.	67446.	0.	6745.	0.	43096.	0.	0.	38291.	226274.	8333.	71628.
1994	2607.	818.	42490.	4358.	38132.	65181.	0.	6518.	0.	50681.	0.	0.	32309.	258583.	6392.	78020.
1995	2722.	850.	44362.	4828.	39534.	73325.	0.	7333.	0.	59030.	0.	0.	35297.	293880.	6348.	84368.
1996	2858.	890.	46330.	5155.	41175.	79499.	0.	7950.	0.	68762.	0.	0.	35793.	329673.	5852.	90221.
1997	2933.	926.	48337.	5343.	42994.	83670.	0.	8367.	0.	72173.	0.	0.	37773.	367446.	5615.	95836.
1998	3138.	965.	50510.	5641.	44869.	89700.	0.	8970.	0.	75969.	0.	0.	41226.	408672.	5571.	101406.
1999	5242.	1012.	52740.	9602.	43138.	155041.	0.	15504.	0.	87695.	0.	0.	93936.	502607.	11540.	112946.
2000	3242.	1012.	54970.	3242.	51728.	53155.	0.	5316.	0.	85653.	0.	0.	3300.	505908.	369.	113315.
2001	0.	0.	54970.	2773.	52197.	46167.	0.	4617.	0.	82937.	0.	0.	-1577.	504331.	-160.	113155.
2002	0.	0.	54970.	4419.	50551.	74707.	0.	7471.	0.	83134.	0.	0.	24006.	528337.	2216.	115370.
2003	0.	0.	54970.	5030.	49940.	86348.	0.	8635.	0.	84113.	0.	0.	33975.	562312.	2851.	118221.
2004	0.	0.	54970.	4579.	50391.	79819.	0.	7982.	0.	83562.	0.	0.	28385.	590696.	2165.	120384.
2005	0.	0.	54970.	4358.	50612.	77139.	0.	7714.	0.	81768.	0.	0.	26905.	617602.	1866.	122250.
2006	0.	0.	54970.	4828.	50142.	86777.	0.	8678.	0.	72016.	0.	0.	40651.	658252.	2563.	124814.
2007	0.	0.	54970.	5155.	49815.	94084.	0.	9408.	0.	77863.	0.	0.	44187.	702439.	2532.	127347.
2008	0.	0.	54970.	5343.	49627.	99019.	0.	9902.	0.	85413.	0.	0.	44703.	747142.	2329.	129675.
2009	0.	0.	54970.	5641.	49329.	106155.	0.	10616.	0.	89906.	0.	0.	48789.	795930.	2311.	131986.
2010	0.	0.	54970.	9602.	45368.	183483.	0.	18348.	0.	103782.	0.	0.	111168.	907098.	4787.	136773.

SHORT USER OUTPUT

AVIONICS CATEGORY: LOW COST GA
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: HELICOPTER
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	12.	4.	170.	16.	154.	49.	0.	5.	0.	49.	0.	0.	18.	18.	16.	16.
1979	7.	4.	173.	13.	160.	40.	0.	4.	0.	49.	0.	0.	11.	29.	9.	25.
1980	9.	2.	180.	20.	160.	63.	0.	6.	0.	51.	0.	0.	30.	58.	22.	47.
1981	14.	4.	190.	25.	167.	73.	0.	7.	0.	55.	0.	0.	37.	95.	25.	73.
1982	12.	4.	198.	23.	175.	74.	0.	7.	0.	58.	0.	0.	36.	132.	23.	95.
1983	8.	5.	201.	18.	183.	59.	0.	6.	0.	59.	0.	0.	22.	154.	13.	108.
1984	6.	3.	204.	20.	184.	67.	0.	7.	0.	61.	0.	0.	28.	183.	15.	123.
1985	12.	4.	212.	24.	188.	81.	0.	8.	0.	65.	0.	0.	39.	222.	18.	141.
1986	6.	4.	214.	20.	194.	69.	0.	7.	0.	69.	0.	0.	26.	247.	11.	152.
1987	11.	4.	221.	25.	196.	87.	0.	9.	0.	73.	0.	0.	41.	288.	16.	167.
1988	0.	7.	214.	12.	202.	42.	0.	4.	0.	68.	0.	0.	3.	290.	1.	168.
1989	14.	4.	224.	26.	198.	93.	0.	9.	0.	71.	0.	0.	47.	338.	15.	183.
1990	15.	5.	234.	25.	211.	363.	0.	36.	0.	115.	0.	0.	267.	605.	77.	261.
1991	15.	4.	245.	31.	214.	443.	0.	44.	0.	168.	0.	0.	311.	916.	82.	343.
1992	16.	5.	256.	34.	222.	493.	0.	49.	0.	227.	0.	0.	326.	1242.	78.	421.
1993	17.	6.	267.	34.	233.	501.	0.	50.	0.	289.	0.	0.	300.	1542.	65.	486.
1994	16.	4.	279.	30.	249.	449.	0.	45.	0.	341.	0.	0.	227.	1769.	45.	531.
1995	19.	6.	292.	33.	259.	501.	0.	50.	0.	406.	0.	0.	240.	2009.	43.	574.
1996	20.	6.	306.	38.	268.	586.	0.	59.	0.	477.	0.	0.	280.	2288.	46.	620.
1997	19.	7.	318.	32.	286.	501.	0.	50.	0.	496.	0.	0.	193.	2481.	29.	648.
1998	23.	6.	335.	42.	293.	668.	0.	67.	0.	528.	0.	0.	326.	2807.	44.	692.
1999	21.	6.	350.	53.	297.	856.	0.	86.	0.	580.	0.	0.	468.	3276.	58.	750.
2000	21.	6.	365.	21.	344.	344.	0.	34.	0.	558.	0.	0.	20.	3296.	2.	752.
2001	0.	0.	365.	17.	348.	283.	0.	28.	0.	534.	0.	0.	-23.	3273.	-2.	750.
2002	0.	0.	365.	31.	334.	524.	0.	52.	0.	547.	0.	0.	192.	3465.	18.	768.
2003	0.	0.	365.	34.	331.	584.	0.	58.	0.	537.	0.	0.	246.	3711.	21.	788.
2004	0.	0.	365.	34.	331.	593.	0.	59.	0.	550.	0.	0.	247.	3958.	19.	807.
2005	0.	0.	365.	30.	335.	531.	0.	53.	0.	531.	0.	0.	202.	4160.	14.	821.
2006	0.	0.	365.	33.	332.	593.	0.	59.	0.	493.	0.	0.	277.	4437.	17.	839.
2007	0.	0.	365.	35.	327.	694.	0.	69.	0.	543.	0.	0.	342.	4779.	20.	858.
2008	0.	0.	365.	32.	333.	593.	0.	59.	0.	587.	0.	0.	228.	5006.	12.	870.
2009	0.	0.	365.	42.	323.	790.	0.	79.	0.	625.	0.	0.	386.	5394.	18.	888.
2010	0.	0.	365.	55.	312.	1013.	0.	101.	0.	687.	0.	0.	554.	5948.	24.	912.

SHORT USER OUTPUT

AVIONICS CATEGORY: LOW COST GA
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: PISTON
REGION(S): CONUS ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	2.	1.	42.	3.	39.	9.	0.	1.	0.	12.	0.	0.	2.	2.	2.	2.
1979	3.	1.	44.	5.	39.	15.	0.	2.	0.	13.	0.	0.	7.	9.	6.	8.
1980	3.	1.	46.	5.	41.	16.	0.	2.	0.	13.	0.	0.	7.	16.	5.	13.
1981	5.	1.	50.	7.	45.	22.	0.	2.	0.	15.	0.	0.	12.	29.	8.	22.
1982	3.	1.	52.	6.	46.	19.	0.	2.	0.	16.	0.	0.	9.	38.	6.	27.
1983	1.	0.	53.	5.	48.	16.	0.	2.	0.	16.	0.	0.	6.	44.	4.	31.
1984	2.	1.	54.	5.	49.	17.	0.	2.	0.	16.	0.	0.	6.	51.	3.	34.
1985	3.	1.	56.	6.	50.	20.	0.	2.	0.	18.	0.	0.	9.	60.	4.	38.
1986	2.	1.	57.	6.	51.	21.	0.	2.	0.	19.	0.	0.	9.	69.	4.	42.
1987	4.	2.	59.	6.	53.	21.	0.	2.	0.	19.	0.	0.	9.	77.	3.	46.
1988	5.	1.	63.	9.	54.	32.	0.	3.	0.	21.	0.	0.	18.	95.	6.	52.
1989	5.	2.	66.	6.	60.	22.	0.	2.	0.	21.	0.	0.	8.	104.	3.	54.
1990	4.	1.	69.	8.	61.	126.	0.	13.	0.	37.	0.	0.	95.	198.	27.	82.
1991	4.	1.	72.	8.	64.	114.	0.	11.	0.	51.	0.	0.	76.	274.	20.	102.
1992	7.	2.	77.	12.	65.	174.	0.	17.	0.	73.	0.	0.	119.	393.	28.	130.
1993	4.	1.	80.	9.	71.	133.	0.	13.	0.	89.	0.	0.	73.	466.	16.	146.
1994	6.	2.	84.	9.	75.	135.	0.	13.	0.	105.	0.	0.	67.	533.	13.	160.
1995	6.	1.	89.	10.	79.	152.	0.	15.	0.	122.	0.	0.	73.	606.	13.	173.
1996	6.	2.	93.	10.	83.	154.	0.	15.	0.	141.	0.	0.	65.	671.	11.	183.
1997	6.	1.	98.	11.	87.	172.	0.	17.	0.	148.	0.	0.	78.	750.	12.	195.
1998	8.	3.	103.	11.	92.	175.	0.	17.	0.	156.	0.	0.	76.	826.	10.	205.
1999	7.	2.	108.	28.	88.	323.	0.	32.	0.	178.	0.	0.	198.	1024.	24.	230.
2000	7.	2.	113.	7.	108.	115.	0.	11.	0.	175.	0.	0.	12.	1036.	1.	231.
2001	0.	0.	113.	6.	107.	100.	0.	10.	0.	170.	0.	0.	1.	1038.	0.	231.
2002	0.	0.	113.	8.	105.	135.	0.	14.	0.	168.	0.	0.	34.	1072.	3.	234.
2003	0.	0.	113.	12.	101.	209.	0.	21.	0.	175.	0.	0.	94.	1167.	8.	242.
2004	0.	0.	113.	9.	104.	157.	0.	16.	0.	173.	0.	0.	51.	1218.	4.	246.
2005	0.	0.	113.	9.	104.	159.	0.	16.	0.	171.	0.	0.	55.	1272.	4.	250.
2006	0.	0.	113.	10.	103.	180.	0.	18.	0.	150.	0.	0.	84.	1356.	5.	255.
2007	0.	0.	113.	10.	103.	183.	0.	18.	0.	160.	0.	0.	81.	1437.	5.	260.
2008	0.	0.	113.	11.	102.	204.	0.	20.	0.	175.	0.	0.	93.	1530.	5.	265.
2009	0.	0.	113.	11.	102.	207.	0.	21.	0.	185.	0.	0.	90.	1620.	4.	269.
2010	0.	0.	113.	20.	93.	382.	0.	38.	0.	210.	0.	0.	235.	1855.	10.	279.

SHORT USER OUTPUT

AVIONICS CATEGORY: LOW COST GA
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: HELICOPTER
REGION(S): CONUS CONUS OFF-SH

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	0.	0.	7.	0.	14.	0.	0.	0.	0.	9.	0.	0.	-5.	-5.	-4.	-4.
1979	0.	0.	7.	2.	12.	17.	0.	2.	0.	11.	0.	0.	9.	4.	7.	3.
1980	1.	0.	8.	2.	14.	17.	0.	2.	0.	12.	0.	0.	9.	13.	7.	10.
1981	0.	0.	8.	2.	14.	16.	0.	2.	0.	12.	0.	0.	9.	22.	6.	16.
1982	2.	1.	9.	4.	14.	33.	0.	3.	0.	16.	0.	0.	21.	43.	13.	29.
1983	0.	0.	9.	0.	18.	0.	0.	0.	0.	14.	0.	0.	-7.	35.	-4.	25.
1984	0.	0.	9.	2.	16.	17.	0.	2.	0.	14.	0.	0.	8.	43.	4.	28.
1985	1.	0.	10.	4.	16.	33.	0.	3.	0.	19.	0.	0.	20.	63.	9.	38.
1986	0.	0.	10.	0.	20.	0.	0.	0.	0.	17.	0.	0.	-9.	54.	-4.	34.
1987	0.	0.	10.	2.	18.	17.	0.	2.	0.	17.	0.	0.	6.	61.	2.	37.
1988	1.	1.	10.	2.	18.	17.	0.	2.	0.	17.	0.	0.	7.	67.	2.	39.
1989	2.	0.	12.	4.	20.	34.	0.	3.	0.	17.	0.	0.	22.	89.	7.	46.
1990	1.	0.	13.	2.	22.	32.	0.	3.	0.	21.	0.	0.	17.	107.	5.	51.
1991	0.	0.	13.	1.	22.	14.	0.	1.	0.	21.	0.	0.	2.	109.	1.	51.
1992	2.	1.	14.	2.	21.	29.	0.	3.	0.	20.	0.	0.	16.	124.	4.	55.
1993	1.	0.	15.	3.	19.	44.	0.	4.	0.	27.	0.	0.	26.	150.	6.	61.
1994	1.	0.	16.	1.	22.	15.	0.	1.	0.	26.	0.	0.	-0.	150.	-0.	61.
1995	1.	0.	17.	2.	21.	30.	0.	3.	0.	28.	0.	0.	13.	162.	2.	63.
1996	2.	1.	18.	5.	19.	44.	0.	5.	0.	30.	0.	0.	26.	188.	4.	67.
1997	0.	0.	18.	0.	22.	0.	0.	0.	0.	26.	0.	0.	-13.	175.	-2.	65.
1998	2.	0.	20.	3.	20.	48.	0.	5.	0.	30.	0.	0.	27.	202.	4.	69.
1999	2.	1.	21.	4.	17.	65.	0.	6.	0.	35.	0.	0.	40.	242.	5.	74.
2000	2.	1.	22.	2.	20.	33.	0.	3.	0.	34.	0.	0.	12.	254.	1.	75.
2001	0.	0.	22.	1.	21.	17.	0.	2.	0.	34.	0.	0.	-3.	251.	-0.	75.
2002	0.	0.	22.	1.	21.	17.	0.	2.	0.	32.	0.	0.	-1.	250.	-0.	75.
2003	0.	0.	22.	2.	20.	34.	0.	3.	0.	30.	0.	0.	15.	265.	1.	76.
2004	0.	0.	22.	3.	19.	52.	0.	5.	0.	38.	0.	0.	27.	292.	2.	78.
2005	0.	0.	22.	1.	21.	18.	0.	2.	0.	34.	0.	0.	-2.	291.	-0.	78.
2006	0.	0.	22.	4.	20.	36.	0.	4.	0.	30.	0.	0.	17.	308.	1.	79.
2007	0.	0.	22.	3.	19.	55.	0.	5.	0.	33.	0.	0.	32.	340.	2.	81.
2008	0.	0.	22.	0.	22.	0.	0.	0.	0.	30.	0.	0.	-16.	324.	-1.	80.
2009	0.	0.	22.	5.	19.	56.	0.	6.	0.	36.	0.	0.	32.	356.	2.	82.
2010	0.	0.	22.	4.	18.	76.	0.	8.	0.	42.	0.	0.	47.	403.	2.	84.

SHORT USER OUTPUT

AVIONICS CATEGORY: LOW COST GA
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: HELICOPTER
REGION(S): CONUS ALASKA CONUS OFF-SHAKA OFF-SH

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	2.	1.	16.	4.	28.	33.	0.	3.	0.	27.	0.	0.	16.	16.	14.	14.
1979	0.	0.	16.	2.	30.	17.	0.	2.	0.	25.	0.	0.	2.	17.	1.	16.
1980	1.	0.	17.	4.	30.	33.	0.	3.	0.	28.	0.	0.	15.	33.	11.	27.
1981	2.	1.	18.	4.	32.	33.	0.	3.	0.	28.	0.	0.	15.	48.	10.	37.
1982	1.	0.	19.	4.	34.	33.	0.	3.	0.	28.	0.	0.	15.	63.	9.	47.
1983	1.	0.	20.	6.	34.	49.	0.	5.	0.	33.	0.	0.	27.	90.	15.	62.
1984	2.	1.	21.	4.	38.	33.	0.	3.	0.	33.	0.	0.	13.	102.	6.	68.
1985	1.	0.	22.	6.	38.	50.	0.	5.	0.	35.	0.	0.	26.	129.	12.	81.
1986	1.	1.	22.	4.	40.	33.	0.	3.	0.	38.	0.	0.	10.	139.	4.	85.
1987	1.	0.	23.	4.	42.	34.	0.	3.	0.	38.	0.	0.	10.	150.	4.	89.
1988	1.	0.	24.	6.	42.	51.	0.	5.	0.	40.	0.	0.	25.	174.	9.	98.
1989	2.	1.	25.	6.	44.	51.	0.	5.	0.	43.	0.	0.	23.	198.	7.	105.
1990	2.	0.	27.	3.	48.	47.	0.	5.	0.	43.	0.	0.	20.	218.	6.	111.
1991	2.	1.	28.	3.	47.	43.	0.	4.	0.	44.	0.	0.	16.	234.	4.	115.
1992	2.	0.	30.	4.	46.	58.	0.	6.	0.	45.	0.	0.	29.	262.	7.	122.
1993	3.	1.	32.	4.	46.	59.	0.	6.	0.	49.	0.	0.	28.	290.	6.	128.
1994	3.	1.	34.	5.	44.	75.	0.	7.	0.	55.	0.	0.	39.	329.	8.	136.
1995	2.	0.	36.	4.	45.	61.	0.	6.	0.	56.	0.	0.	25.	354.	5.	140.
1996	3.	1.	38.	5.	43.	77.	0.	8.	0.	60.	0.	0.	38.	393.	6.	147.
1997	3.	1.	40.	4.	44.	63.	0.	6.	0.	62.	0.	0.	24.	417.	4.	150.
1998	3.	1.	42.	4.	44.	64.	0.	6.	0.	65.	0.	0.	23.	440.	3.	153.
1999	4.	1.	45.	9.	36.	145.	0.	15.	0.	78.	0.	0.	90.	530.	11.	165.
2000	4.	1.	48.	4.	44.	66.	0.	7.	0.	79.	0.	0.	18.	549.	2.	167.
2001	0.	0.	48.	2.	46.	33.	0.	3.	0.	73.	0.	0.	-8.	541.	-1.	166.
2002	0.	0.	48.	3.	45.	51.	0.	5.	0.	71.	0.	0.	9.	549.	1.	167.
2003	0.	0.	48.	4.	44.	69.	0.	7.	0.	70.	0.	0.	25.	575.	2.	169.
2004	0.	0.	48.	4.	44.	70.	0.	7.	0.	71.	0.	0.	26.	601.	2.	171.
2005	0.	0.	48.	5.	43.	89.	0.	9.	0.	75.	0.	0.	41.	642.	3.	174.
2006	0.	0.	48.	4.	44.	72.	0.	7.	0.	64.	0.	0.	31.	673.	2.	176.
2007	0.	0.	48.	5.	43.	91.	0.	9.	0.	68.	0.	0.	47.	720.	3.	178.
2008	0.	0.	48.	4.	44.	74.	0.	7.	0.	74.	0.	0.	28.	748.	1.	180.
2009	0.	0.	48.	4.	44.	75.	0.	8.	0.	77.	0.	0.	28.	776.	1.	181.
2010	0.	0.	48.	9.	39.	172.	0.	17.	0.	92.	0.	0.	107.	883.	5.	186.

SHORT USER OUTPUT

AVIONICS CATEGORY: LOW COST GA
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: PISTON
REGION(S): ALASKA

YEAR	NEW AC	RET AC	NET POP	PCNGS PUPCH	PCNGS CARRIED	PUPCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	34.	11.	587.	50.	537.	152.	0.	15.	0.	170.	0.	0.	48.	48.	44.	44.
1979	46.	12.	621.	71.	550.	219.	0.	22.	0.	179.	0.	0.	104.	152.	86.	130.
1980	44.	12.	653.	75.	578.	235.	0.	23.	0.	191.	0.	0.	112.	264.	84.	214.
1981	57.	13.	697.	91.	606.	289.	0.	29.	0.	208.	0.	0.	152.	417.	104.	318.
1982	46.	14.	729.	83.	646.	268.	0.	27.	0.	221.	0.	0.	126.	543.	78.	396.
1983	35.	15.	749.	74.	675.	243.	0.	24.	0.	229.	0.	0.	99.	642.	56.	453.
1984	36.	14.	771.	78.	693.	260.	0.	26.	0.	238.	0.	0.	110.	752.	56.	509.
1985	47.	16.	802.	90.	712.	304.	0.	30.	0.	260.	0.	0.	139.	891.	65.	574.
1986	48.	18.	832.	91.	741.	312.	0.	31.	0.	273.	0.	0.	139.	1030.	59.	633.
1987	47.	16.	863.	94.	769.	328.	0.	33.	0.	286.	0.	0.	146.	1176.	56.	689.
1988	70.	16.	917.	120.	797.	425.	0.	42.	0.	306.	0.	0.	223.	1399.	78.	767.
1989	68.	16.	967.	100.	867.	359.	0.	36.	0.	319.	0.	0.	158.	1557.	50.	817.
1990	73.	20.	1020.	124.	896.	1959.	0.	196.	0.	564.	0.	0.	1470.	3027.	426.	1243.
1991	78.	20.	1078.	133.	945.	1900.	0.	190.	0.	798.	0.	0.	1295.	4322.	341.	1584.
1992	82.	23.	1137.	150.	987.	2176.	0.	218.	0.	1065.	0.	0.	1404.	5726.	336.	1920.
1993	85.	23.	1199.	145.	1054.	2136.	0.	214.	0.	1326.	0.	0.	1233.	6959.	268.	2189.
1994	90.	23.	1266.	141.	1125.	2109.	0.	211.	0.	1580.	0.	0.	1076.	8035.	213.	2402.
1995	96.	25.	1336.	148.	1188.	2248.	0.	225.	0.	1841.	0.	0.	1066.	9101.	192.	2593.
1996	102.	27.	1411.	165.	1246.	2545.	0.	254.	0.	2153.	0.	0.	1171.	10271.	191.	2785.
1997	108.	28.	1486.	166.	1320.	2600.	0.	260.	0.	2245.	0.	0.	1172.	11443.	174.	2959.
1998	113.	29.	1570.	178.	1392.	2830.	0.	283.	0.	2378.	0.	0.	1311.	12755.	177.	3136.
1999	118.	32.	1656.	309.	1350.	4941.	0.	494.	0.	2773.	0.	0.	3005.	15760.	369.	3505.
2000	118.	32.	1742.	118.	1624.	1935.	0.	193.	0.	2744.	0.	0.	314.	16074.	35.	3540.
2001	0.	0.	1742.	92.	1650.	1532.	0.	153.	0.	2661.	0.	0.	-5.	16069.	-1.	3540.
2002	0.	0.	1742.	133.	1609.	2248.	0.	225.	0.	2661.	0.	0.	640.	16708.	59.	3599.
2003	0.	0.	1742.	150.	1592.	2575.	0.	257.	0.	2666.	0.	0.	931.	17640.	78.	3677.
2004	0.	0.	1742.	145.	1597.	2528.	0.	253.	0.	2656.	0.	0.	894.	18534.	68.	3745.
2005	0.	0.	1742.	141.	1601.	2496.	0.	250.	0.	2608.	0.	0.	890.	19424.	62.	3807.
2006	0.	0.	1742.	148.	1594.	2660.	0.	266.	0.	2282.	0.	0.	1207.	20631.	76.	3883.
2007	0.	0.	1742.	165.	1577.	3011.	0.	301.	0.	2436.	0.	0.	1444.	22075.	83.	3966.
2008	0.	0.	1742.	168.	1576.	3076.	0.	308.	0.	2656.	0.	0.	1387.	23462.	72.	4038.
2009	0.	0.	1742.	178.	1564.	3350.	0.	335.	0.	2814.	0.	0.	1552.	25014.	73.	4112.
2010	0.	0.	1742.	306.	1436.	5847.	0.	585.	0.	3281.	0.	0.	3556.	28570.	153.	4265.

SHORT USER OUTPUT

AVIONICS CATEGORY: LOW COST GA
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: PISTON
REGION(S): ALASKA AKA OFF-SH

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	0.	0.	12.	2.	22.	17.	0.	2.	0.	20.	0.	0.	4.	4.	4.	4.
1979	1.	0.	13.	2.	24.	17.	0.	2.	0.	18.	0.	0.	5.	10.	4.	8.
1980	1.	1.	13.	2.	24.	17.	0.	2.	0.	19.	0.	0.	5.	15.	4.	12.
1981	3.	0.	16.	8.	24.	66.	0.	7.	0.	26.	0.	0.	46.	61.	31.	44.
1982	1.	0.	17.	4.	30.	33.	0.	3.	0.	28.	0.	0.	15.	76.	9.	53.
1983	0.	0.	17.	4.	30.	33.	0.	3.	0.	28.	0.	0.	15.	91.	8.	61.
1984	1.	1.	17.	2.	32.	17.	0.	2.	0.	28.	0.	0.	0.	91.	0.	61.
1985	1.	0.	18.	4.	32.	33.	0.	3.	0.	31.	0.	0.	14.	105.	6.	68.
1986	1.	0.	19.	4.	34.	33.	0.	3.	0.	33.	0.	0.	13.	118.	5.	73.
1987	0.	0.	19.	4.	34.	34.	0.	3.	0.	35.	0.	0.	12.	129.	5.	78.
1988	2.	1.	20.	4.	36.	34.	0.	3.	0.	31.	0.	0.	14.	144.	5.	83.
1989	1.	0.	21.	4.	38.	34.	0.	3.	0.	31.	0.	0.	14.	158.	5.	87.
1990	1.	0.	22.	2.	40.	32.	0.	3.	0.	31.	0.	0.	12.	170.	4.	91.
1991	2.	1.	23.	2.	40.	29.	0.	3.	0.	33.	0.	0.	9.	179.	2.	93.
1992	3.	1.	25.	6.	34.	87.	0.	9.	0.	40.	0.	0.	57.	237.	14.	107.
1993	1.	0.	26.	3.	36.	44.	0.	4.	0.	42.	0.	0.	18.	255.	4.	111.
1994	3.	1.	28.	4.	35.	60.	0.	6.	0.	46.	0.	0.	30.	285.	6.	117.
1995	1.	0.	29.	2.	37.	30.	0.	3.	0.	45.	0.	0.	4.	289.	1.	118.
1996	2.	1.	30.	5.	35.	46.	0.	5.	0.	47.	0.	0.	17.	306.	3.	120.
1997	2.	0.	32.	4.	34.	63.	0.	6.	0.	51.	0.	0.	30.	336.	4.	125.
1998	4.	1.	35.	5.	34.	80.	0.	8.	0.	59.	0.	0.	41.	377.	6.	130.
1999	2.	0.	37.	6.	31.	97.	0.	10.	0.	60.	0.	0.	56.	433.	7.	137.
2000	2.	0.	39.	2.	37.	33.	0.	3.	0.	58.	0.	0.	-1.	432.	-0.	137.
2001	0.	0.	39.	2.	37.	33.	0.	3.	0.	55.	0.	0.	2.	434.	0.	137.
2002	0.	0.	39.	2.	37.	34.	0.	3.	0.	55.	0.	0.	2.	435.	0.	138.
2003	0.	0.	39.	6.	33.	103.	0.	10.	0.	63.	0.	0.	60.	495.	5.	143.
2004	0.	0.	39.	3.	36.	52.	0.	5.	0.	62.	0.	0.	15.	510.	1.	144.
2005	0.	0.	39.	4.	35.	71.	0.	7.	0.	60.	0.	0.	32.	543.	2.	146.
2006	0.	0.	39.	2.	37.	36.	0.	4.	0.	52.	0.	0.	5.	548.	0.	146.
2007	0.	0.	39.	3.	36.	55.	0.	5.	0.	55.	0.	0.	21.	569.	1.	148.
2008	0.	0.	39.	4.	35.	74.	0.	7.	0.	61.	0.	0.	35.	604.	2.	149.
2009	0.	0.	39.	5.	34.	94.	0.	9.	0.	69.	0.	0.	49.	653.	2.	152.
2010	0.	0.	39.	6.	33.	115.	0.	11.	0.	71.	0.	0.	66.	719.	3.	155.

SHORT USER OUTPUT

AVIONICS CATEGORY: LOW COST GA
USER GROUP: PER-OTHER
AIRCRAFT TYPE: PISTON
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	1098.	431.	22144.	1676.	20466.	5095.	0.	0.	0.	0.	0.	0.	5095.	5095.	4631.	4631.
1979	1165.	442.	22847.	2122.	20725.	6542.	0.	0.	0.	0.	0.	0.	6542.	11437.	5407.	10038.
1980	1165.	454.	23858.	2650.	21208.	8296.	0.	0.	0.	0.	0.	0.	8296.	19933.	6233.	16271.
1981	1526.	477.	25207.	3151.	22056.	10017.	0.	0.	0.	0.	0.	0.	10017.	29949.	6841.	23113.
1982	1249.	502.	25954.	2682.	23272.	8657.	0.	0.	0.	0.	0.	0.	8657.	38607.	5375.	28488.
1983	859.	519.	26294.	2586.	23906.	7827.	0.	0.	0.	0.	0.	0.	7827.	46434.	4018.	32906.
1984	1124.	525.	26893.	2747.	24146.	9143.	0.	0.	0.	0.	0.	0.	9143.	55577.	4692.	37598.
1985	1201.	535.	27619.	2960.	24655.	10024.	0.	0.	0.	0.	0.	0.	10024.	65601.	4676.	42274.
1986	1335.	556.	28398.	3104.	25294.	10652.	0.	0.	0.	0.	0.	0.	10652.	76253.	4518.	46792.
1987	1382.	562.	29216.	3226.	25990.	11249.	0.	0.	0.	0.	0.	0.	11249.	87502.	4337.	51129.
1988	2014.	584.	30648.	3932.	26716.	13913.	0.	0.	0.	0.	0.	0.	13913.	101415.	4877.	56005.
1989	1895.	613.	31930.	3960.	28970.	10636.	0.	0.	0.	0.	0.	0.	10636.	112051.	3389.	59394.
1990	2045.	658.	33337.	3529.	29808.	55751.	0.	0.	0.	0.	0.	0.	55751.	167801.	16149.	75543.
1991	2138.	667.	34806.	4121.	30687.	58869.	0.	0.	0.	0.	0.	0.	58869.	226670.	15502.	91045.
1992	2239.	699.	36346.	4691.	31657.	68046.	0.	0.	0.	0.	0.	0.	68046.	294716.	16290.	107335.
1993	2318.	723.	37943.	4277.	33000.	62998.	0.	0.	0.	0.	0.	0.	62998.	357714.	13710.	121045.
1994	2441.	761.	39623.	4068.	35555.	60844.	0.	0.	0.	0.	0.	0.	60844.	418557.	12039.	133083.
1995	2544.	793.	41378.	4496.	36876.	68313.	0.	0.	0.	0.	0.	0.	68313.	486871.	12287.	145369.
1996	2673.	827.	43220.	4812.	38408.	74210.	0.	0.	0.	0.	0.	0.	74210.	561080.	12134.	157503.
1997	2746.	862.	45104.	4998.	40116.	78111.	0.	0.	0.	0.	0.	0.	78111.	639191.	11611.	169114.
1998	2944.	900.	47148.	5272.	41876.	83832.	0.	0.	0.	0.	0.	0.	83832.	723023.	11328.	180442.
1999	3041.	942.	49247.	8991.	40256.	145175.	0.	0.	0.	0.	0.	0.	145175.	868199.	17834.	198276.
2000	3041.	942.	51346.	3041.	48305.	49860.	0.	0.	0.	0.	0.	0.	49860.	918059.	5568.	203845.
2001	0.	0.	51346.	2587.	48759.	43071.	0.	0.	0.	0.	0.	0.	43071.	961129.	4373.	208217.
2002	0.	0.	51346.	4121.	47225.	69669.	0.	0.	0.	0.	0.	0.	69669.	1030798.	6430.	214647.
2003	0.	0.	51346.	4691.	46655.	80529.	0.	0.	0.	0.	0.	0.	80529.	1111327.	6757.	221404.
2004	0.	0.	51346.	4277.	47069.	74555.	0.	0.	0.	0.	0.	0.	74555.	1185881.	5687.	227091.
2005	0.	0.	51346.	4068.	47278.	72006.	0.	0.	0.	0.	0.	0.	72006.	1257887.	4993.	232084.
2006	0.	0.	51346.	4496.	46848.	80845.	0.	0.	0.	0.	0.	0.	80845.	1338732.	5096.	237181.
2007	0.	0.	51346.	4812.	46534.	87823.	0.	0.	0.	0.	0.	0.	87823.	1426555.	5033.	242214.
2008	0.	0.	51346.	4988.	46358.	92440.	0.	0.	0.	0.	0.	0.	92440.	1518996.	4816.	247030.
2009	0.	0.	51346.	5272.	46074.	99211.	0.	0.	0.	0.	0.	0.	99211.	1618207.	4699.	251729.
2010	0.	0.	51346.	8991.	42355.	171808.	0.	0.	0.	0.	0.	0.	171808.	1790014.	7397.	259126.

SHORT USER OUTPUT

AVIONICS CATEGORY: LOW COST GA
USER GROUP: PER-OTHER
AIRCRAFT TYPE: HELICOPTER
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	12.	2.	195.	19.	176.	58.	0.	0.	0.	0.	0.	0.	58.	58.	52.	52.
1979	8.	5.	198.	15.	183.	46.	0.	0.	0.	0.	0.	0.	46.	104.	38.	91.
1980	12.	3.	207.	25.	184.	72.	0.	0.	0.	0.	0.	0.	72.	176.	54.	145.
1981	16.	5.	218.	27.	191.	86.	0.	0.	0.	0.	0.	0.	86.	262.	59.	203.
1982	12.	4.	226.	24.	202.	77.	0.	0.	0.	0.	0.	0.	77.	339.	48.	251.
1983	10.	4.	232.	24.	206.	79.	0.	0.	0.	0.	0.	0.	79.	418.	44.	296.
1984	7.	4.	235.	21.	214.	70.	0.	0.	0.	0.	0.	0.	70.	488.	36.	332.
1985	13.	6.	242.	27.	215.	91.	0.	0.	0.	0.	0.	0.	91.	579.	43.	374.
1986	8.	4.	246.	24.	222.	82.	0.	0.	0.	0.	0.	0.	82.	661.	35.	409.
1987	13.	6.	253.	27.	226.	94.	0.	0.	0.	0.	0.	0.	94.	755.	36.	446.
1988	0.	7.	246.	15.	231.	53.	0.	0.	0.	0.	0.	0.	53.	809.	19.	464.
1989	15.	5.	256.	29.	227.	104.	0.	0.	0.	0.	0.	0.	104.	913.	33.	497.
1990	17.	5.	268.	27.	241.	427.	0.	0.	0.	0.	0.	0.	427.	1339.	124.	621.
1991	17.	4.	281.	36.	245.	514.	0.	0.	0.	0.	0.	0.	514.	1854.	135.	756.
1992	17.	5.	293.	34.	254.	566.	0.	0.	0.	0.	0.	0.	566.	2419.	135.	892.
1993	20.	7.	306.	37.	269.	545.	0.	0.	0.	0.	0.	0.	545.	2964.	119.	1010.
1994	19.	5.	320.	38.	282.	568.	0.	0.	0.	0.	0.	0.	568.	3533.	112.	1123.
1995	22.	7.	335.	36.	299.	547.	0.	0.	0.	0.	0.	0.	547.	4079.	98.	1221.
1996	23.	8.	350.	42.	308.	648.	0.	0.	0.	0.	0.	0.	648.	4727.	106.	1327.
1997	23.	8.	365.	39.	326.	611.	0.	0.	0.	0.	0.	0.	611.	5338.	91.	1418.
1998	26.	8.	383.	45.	338.	716.	0.	0.	0.	0.	0.	0.	716.	6053.	97.	1515.
1999	26.	8.	401.	62.	334.	1001.	0.	0.	0.	0.	0.	0.	1001.	7054.	123.	1637.
2000	26.	8.	419.	20.	393.	426.	0.	0.	0.	0.	0.	0.	426.	7481.	48.	1685.
2001	0.	0.	419.	19.	400.	316.	0.	0.	0.	0.	0.	0.	316.	7797.	32.	1717.
2002	0.	0.	419.	36.	383.	609.	0.	0.	0.	0.	0.	0.	609.	8406.	56.	1773.
2003	0.	0.	419.	34.	380.	669.	0.	0.	0.	0.	0.	0.	669.	9075.	56.	1830.
2004	0.	0.	419.	37.	382.	645.	0.	0.	0.	0.	0.	0.	645.	9720.	49.	1879.
2005	0.	0.	419.	38.	381.	673.	0.	0.	0.	0.	0.	0.	673.	10393.	47.	1925.
2006	0.	0.	419.	36.	383.	647.	0.	0.	0.	0.	0.	0.	647.	11040.	41.	1966.
2007	0.	0.	419.	42.	377.	767.	0.	0.	0.	0.	0.	0.	767.	11806.	44.	2010.
2008	0.	0.	419.	39.	380.	723.	0.	0.	0.	0.	0.	0.	723.	12529.	38.	2048.
2009	0.	0.	419.	45.	374.	847.	0.	0.	0.	0.	0.	0.	847.	13376.	40.	2088.
2010	0.	0.	419.	62.	357.	1185.	0.	0.	0.	0.	0.	0.	1185.	14561.	51.	2139.

SHORT USER OUTPUT

AVIONICS CATEGORY: LOW COST GA
USER GROUP: PER-OTHER
AIRCRAFT TYPE: PISTON
REGION(S): CONUS ALASKA

YEAR	NEW AC	RET AC	NET PUP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	2.	1.	50.	3.	47.	9.	0.	0.	0.	0.	0.	0.	9.	9.	8.	8.
1979	3.	0.	53.	7.	46.	22.	0.	0.	0.	0.	0.	0.	22.	31.	18.	26.
1980	3.	0.	56.	6.	50.	19.	0.	0.	0.	0.	0.	0.	19.	49.	14.	40.
1981	5.	2.	59.	7.	52.	22.	0.	0.	0.	0.	0.	0.	22.	72.	15.	55.
1982	3.	0.	62.	8.	54.	26.	0.	0.	0.	0.	0.	0.	26.	98.	16.	71.
1983	2.	0.	64.	6.	58.	20.	0.	0.	0.	0.	0.	0.	20.	117.	11.	83.
1984	3.	1.	66.	7.	59.	23.	0.	0.	0.	0.	0.	0.	23.	141.	12.	95.
1985	3.	1.	68.	7.	61.	24.	0.	0.	0.	0.	0.	0.	24.	164.	11.	106.
1986	5.	1.	72.	10.	62.	34.	0.	0.	0.	0.	0.	0.	34.	198.	15.	120.
1987	3.	0.	75.	8.	67.	28.	0.	0.	0.	0.	0.	0.	28.	226.	11.	131.
1988	7.	2.	80.	11.	69.	39.	0.	0.	0.	0.	0.	0.	39.	265.	14.	144.
1989	5.	1.	84.	7.	77.	25.	0.	0.	0.	0.	0.	0.	25.	290.	8.	153.
1990	7.	2.	89.	12.	77.	190.	0.	0.	0.	0.	0.	0.	190.	480.	55.	207.
1991	5.	0.	94.	11.	83.	157.	0.	0.	0.	0.	0.	0.	157.	637.	41.	249.
1992	6.	2.	98.	11.	87.	160.	0.	0.	0.	0.	0.	0.	160.	797.	38.	287.
1993	8.	2.	104.	14.	90.	206.	0.	0.	0.	0.	0.	0.	206.	1003.	45.	332.
1994	7.	2.	109.	11.	98.	165.	0.	0.	0.	0.	0.	0.	165.	1167.	33.	364.
1995	10.	3.	116.	14.	102.	213.	0.	0.	0.	0.	0.	0.	213.	1380.	38.	403.
1996	7.	1.	122.	13.	109.	200.	0.	0.	0.	0.	0.	0.	200.	1581.	33.	435.
1997	9.	1.	130.	18.	112.	282.	0.	0.	0.	0.	0.	0.	282.	1862.	42.	477.
1998	9.	1.	138.	10.	122.	254.	0.	0.	0.	0.	0.	0.	254.	2117.	34.	512.
1999	9.	3.	144.	24.	120.	386.	0.	0.	0.	0.	0.	0.	388.	2504.	48.	559.
2000	9.	3.	150.	9.	141.	148.	0.	0.	0.	0.	0.	0.	148.	2652.	16.	576.
2001	0.	0.	150.	9.	141.	150.	0.	0.	0.	0.	0.	0.	150.	2802.	15.	591.
2002	0.	0.	150.	11.	139.	186.	0.	0.	0.	0.	0.	0.	186.	2988.	17.	608.
2003	0.	0.	150.	11.	139.	189.	0.	0.	0.	0.	0.	0.	189.	3177.	16.	624.
2004	0.	0.	150.	14.	136.	244.	0.	0.	0.	0.	0.	0.	244.	3421.	19.	643.
2005	0.	0.	150.	11.	139.	195.	0.	0.	0.	0.	0.	0.	195.	3615.	14.	656.
2006	0.	0.	150.	14.	136.	252.	0.	0.	0.	0.	0.	0.	252.	3867.	16.	672.
2007	0.	0.	150.	13.	137.	237.	0.	0.	0.	0.	0.	0.	237.	4104.	14.	686.
2008	0.	0.	150.	18.	132.	334.	0.	0.	0.	0.	0.	0.	334.	4439.	17.	703.
2009	0.	0.	150.	16.	134.	301.	0.	0.	0.	0.	0.	0.	301.	4739.	14.	717.
2010	0.	0.	150.	24.	126.	459.	0.	0.	0.	0.	0.	0.	459.	5198.	20.	737.

SHORT USER OUTPUT

AVIONICS CATEGORY: LOW COST GA
USER GROUP: PER-OTHER
AIRCRAFT TYPE: HELICOPTER
REGION(S): CONUS CONUS OFF-SH

YEAR	NEW AC	RET AC	NET PUP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	0.	0.	4.	0.	8.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1979	1.	0.	5.	2.	8.	17.	0.	0.	0.	0.	0.	0.	17.	17.	14.	14.
1980	0.	0.	5.	2.	8.	17.	0.	0.	0.	0.	0.	0.	17.	33.	12.	26.
1981	0.	0.	5.	0.	10.	0.	0.	0.	0.	0.	0.	0.	0.	33.	0.	26.
1982	0.	0.	5.	0.	10.	0.	0.	0.	0.	0.	0.	0.	0.	33.	0.	26.
1983	1.	0.	6.	4.	8.	33.	0.	0.	0.	0.	0.	0.	33.	66.	19.	45.
1984	0.	0.	6.	0.	12.	0.	0.	0.	0.	0.	0.	0.	0.	66.	0.	45.
1985	0.	0.	6.	2.	10.	17.	0.	0.	0.	0.	0.	0.	17.	83.	8.	52.
1986	1.	1.	6.	2.	10.	17.	0.	0.	0.	0.	0.	0.	17.	99.	7.	59.
1987	1.	0.	7.	2.	12.	17.	0.	0.	0.	0.	0.	0.	17.	116.	6.	66.
1988	0.	0.	7.	0.	14.	0.	0.	0.	0.	0.	0.	0.	0.	116.	0.	66.
1989	0.	0.	7.	0.	14.	0.	0.	0.	0.	0.	0.	0.	0.	116.	0.	66.
1990	0.	0.	7.	1.	12.	16.	0.	0.	0.	0.	0.	0.	16.	132.	5.	70.
1991	1.	0.	8.	2.	11.	29.	0.	0.	0.	0.	0.	0.	29.	160.	8.	78.
1992	0.	0.	8.	0.	13.	0.	0.	0.	0.	0.	0.	0.	0.	160.	0.	78.
1993	2.	1.	9.	2.	11.	29.	0.	0.	0.	0.	0.	0.	29.	190.	6.	84.
1994	0.	0.	9.	1.	11.	15.	0.	0.	0.	0.	0.	0.	15.	205.	3.	87.
1995	1.	0.	10.	1.	12.	15.	0.	0.	0.	0.	0.	0.	15.	220.	3.	90.
1996	1.	0.	11.	2.	11.	31.	0.	0.	0.	0.	0.	0.	31.	251.	5.	95.
1997	0.	0.	11.	1.	11.	16.	0.	0.	0.	0.	0.	0.	16.	266.	2.	97.
1998	2.	1.	12.	2.	10.	32.	0.	0.	0.	0.	0.	0.	32.	298.	4.	102.
1999	1.	0.	13.	1.	12.	16.	0.	0.	0.	0.	0.	0.	16.	314.	2.	104.
2000	1.	0.	14.	1.	13.	16.	0.	0.	0.	0.	0.	0.	16.	331.	2.	106.
2001	0.	0.	14.	1.	13.	17.	0.	0.	0.	0.	0.	0.	17.	347.	2.	107.
2002	0.	0.	14.	2.	12.	34.	0.	0.	0.	0.	0.	0.	34.	381.	3.	110.
2003	0.	0.	14.	0.	14.	0.	0.	0.	0.	0.	0.	0.	0.	381.	0.	110.
2004	0.	0.	14.	2.	12.	35.	0.	0.	0.	0.	0.	0.	35.	416.	3.	113.
2005	0.	0.	14.	1.	13.	18.	0.	0.	0.	0.	0.	0.	18.	434.	1.	114.
2006	0.	0.	14.	1.	13.	18.	0.	0.	0.	0.	0.	0.	18.	452.	1.	115.
2007	0.	0.	14.	2.	12.	37.	0.	0.	0.	0.	0.	0.	37.	488.	2.	118.
2008	0.	0.	14.	1.	13.	19.	0.	0.	0.	0.	0.	0.	19.	507.	1.	118.
2009	0.	0.	14.	2.	12.	38.	0.	0.	0.	0.	0.	0.	38.	544.	2.	120.
2010	0.	0.	14.	1.	13.	19.	0.	0.	0.	0.	0.	0.	19.	564.	1.	121.

SHORT USER OUTPUT

AVIONICS CATEGORY: LOW COST GA
USER GROUP: PER-OTHER
AIRCRAFT TYPE: PISTON
REGION(S): ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	39.	14.	649.	54.	595.	164.	0.	0.	0.	0.	0.	0.	164.	164.	149.	149.
1979	51.	11.	689.	82.	607.	253.	0.	0.	0.	0.	0.	0.	253.	417.	209.	358.
1980	55.	15.	729.	87.	642.	272.	0.	0.	0.	0.	0.	0.	272.	689.	205.	563.
1981	67.	14.	782.	106.	676.	337.	0.	0.	0.	0.	0.	0.	337.	1026.	230.	793.
1982	56.	17.	821.	95.	726.	307.	0.	0.	0.	0.	0.	0.	307.	1333.	190.	983.
1983	42.	15.	848.	80.	762.	282.	0.	0.	0.	0.	0.	0.	282.	1615.	159.	1142.
1984	45.	17.	876.	91.	785.	303.	0.	0.	0.	0.	0.	0.	303.	1917.	155.	1298.
1985	58.	17.	917.	106.	811.	358.	0.	0.	0.	0.	0.	0.	358.	2276.	167.	1465.
1986	58.	18.	957.	107.	850.	367.	0.	0.	0.	0.	0.	0.	367.	2643.	156.	1621.
1987	63.	20.	1000.	115.	887.	394.	0.	0.	0.	0.	0.	0.	394.	3037.	152.	1772.
1988	94.	21.	1073.	140.	927.	517.	0.	0.	0.	0.	0.	0.	517.	3553.	181.	1953.
1989	65.	21.	1117.	118.	1019.	424.	0.	0.	0.	0.	0.	0.	424.	3977.	135.	2089.
1990	89.	22.	1204.	144.	1055.	2354.	0.	0.	0.	0.	0.	0.	2354.	6331.	682.	2770.
1991	97.	24.	1277.	160.	1117.	2286.	0.	0.	0.	0.	0.	0.	2286.	8617.	602.	3372.
1992	102.	25.	1354.	183.	1171.	2655.	0.	0.	0.	0.	0.	0.	2655.	11271.	635.	4008.
1993	100.	25.	1435.	176.	1254.	2592.	0.	0.	0.	0.	0.	0.	2592.	13864.	564.	4572.
1994	115.	29.	1521.	172.	1349.	2573.	0.	0.	0.	0.	0.	0.	2573.	16436.	509.	5081.
1995	120.	31.	1610.	180.	1430.	2734.	0.	0.	0.	0.	0.	0.	2734.	19170.	492.	5573.
1996	128.	32.	1706.	202.	1504.	3115.	0.	0.	0.	0.	0.	0.	3115.	22285.	509.	6082.
1997	134.	36.	1804.	205.	1594.	3210.	0.	0.	0.	0.	0.	0.	3210.	25495.	477.	6559.
1998	144.	36.	1912.	221.	1691.	3514.	0.	0.	0.	0.	0.	0.	3514.	29010.	475.	7034.
1999	149.	37.	2024.	376.	1648.	6071.	0.	0.	0.	0.	0.	0.	6071.	35081.	746.	7780.
2000	149.	37.	2136.	149.	1987.	2443.	0.	0.	0.	0.	0.	0.	2443.	37524.	273.	8053.
2001	0.	0.	2136.	112.	2024.	1865.	0.	0.	0.	0.	0.	0.	1865.	39389.	189.	8242.
2002	0.	0.	2136.	160.	1976.	2705.	0.	0.	0.	0.	0.	0.	2705.	42093.	250.	8492.
2003	0.	0.	2136.	183.	1953.	3141.	0.	0.	0.	0.	0.	0.	3141.	45235.	264.	8755.
2004	0.	0.	2136.	176.	1960.	3068.	0.	0.	0.	0.	0.	0.	3068.	48303.	234.	8989.
2005	0.	0.	2136.	172.	1964.	3044.	0.	0.	0.	0.	0.	0.	3044.	51347.	211.	9200.
2006	0.	0.	2136.	180.	1956.	3235.	0.	0.	0.	0.	0.	0.	3235.	54583.	204.	9404.
2007	0.	0.	2136.	202.	1934.	3687.	0.	0.	0.	0.	0.	0.	3687.	58269.	211.	9616.
2008	0.	0.	2136.	205.	1931.	3799.	0.	0.	0.	0.	0.	0.	3799.	62068.	198.	9813.
2009	0.	0.	2136.	221.	1915.	4159.	0.	0.	0.	0.	0.	0.	4159.	66227.	197.	10010.
2010	0.	0.	2136.	376.	1760.	7185.	0.	0.	0.	0.	0.	0.	7185.	73412.	309.	10320.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA
USER GROUP: AIR TAXI
AIRCRAFT TYPE: PISTON
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	11.	4.	174.	15.	159.	105.	0.	11.	0.	116.	0.	0.	34.	34.	31.	31.
1979	9.	3.	180.	17.	163.	121.	0.	12.	0.	119.	0.	0.	47.	82.	39.	70.
1980	13.	4.	189.	22.	167.	159.	0.	16.	0.	126.	0.	0.	77.	159.	58.	128.
1981	17.	4.	202.	27.	175.	198.	0.	20.	0.	138.	0.	0.	107.	266.	73.	201.
1982	12.	4.	210.	23.	187.	171.	0.	17.	0.	145.	0.	0.	79.	345.	49.	250.
1983	7.	4.	213.	19.	194.	144.	0.	14.	0.	147.	0.	0.	53.	398.	30.	280.
1984	13.	5.	221.	24.	197.	184.	0.	18.	0.	155.	0.	0.	86.	483.	44.	324.
1985	12.	5.	228.	25.	203.	195.	0.	20.	0.	168.	0.	0.	88.	572.	41.	365.
1986	14.	5.	237.	27.	210.	214.	0.	21.	0.	181.	0.	0.	99.	670.	42.	407.
1987	12.	4.	245.	27.	218.	217.	0.	22.	0.	189.	0.	0.	97.	767.	37.	445.
1988	30.	5.	270.	44.	226.	359.	0.	36.	0.	212.	0.	0.	213.	980.	75.	519.
1989	20.	7.	283.	28.	255.	232.	0.	23.	0.	221.	0.	0.	94.	1075.	30.	549.
1990	21.	5.	299.	33.	266.	610.	0.	61.	0.	288.	0.	0.	400.	1474.	116.	665.
1991	22.	6.	315.	38.	277.	599.	0.	60.	0.	347.	0.	0.	359.	1833.	94.	760.
1992	22.	6.	331.	43.	288.	675.	0.	68.	0.	415.	0.	0.	392.	2225.	94.	853.
1993	25.	6.	350.	42.	308.	670.	0.	67.	0.	480.	0.	0.	353.	2578.	77.	930.
1994	26.	8.	368.	37.	331.	599.	0.	60.	0.	535.	0.	0.	261.	2839.	52.	982.
1995	26.	7.	387.	43.	344.	707.	0.	71.	0.	585.	0.	0.	332.	3171.	60.	1042.
1996	27.	7.	407.	45.	362.	751.	0.	75.	0.	659.	0.	0.	334.	3505.	55.	1096.
1997	30.	8.	429.	49.	380.	831.	0.	83.	0.	690.	0.	0.	389.	3894.	58.	1154.
1998	30.	8.	451.	49.	402.	844.	0.	84.	0.	725.	0.	0.	382.	4276.	52.	1206.
1999	33.	9.	475.	96.	374.	1678.	0.	168.	0.	869.	0.	0.	1059.	5335.	130.	1336.
2000	33.	9.	499.	33.	466.	586.	0.	59.	0.	857.	0.	0.	82.	5417.	9.	1345.
2001	0.	0.	499.	24.	475.	433.	0.	43.	0.	833.	0.	0.	-44.	5373.	-4.	1340.
2002	0.	0.	499.	38.	461.	696.	0.	70.	0.	831.	0.	0.	194.	5567.	18.	1358.
2003	0.	0.	499.	43.	456.	799.	0.	80.	0.	838.	0.	0.	284.	5850.	24.	1382.
2004	0.	0.	499.	42.	457.	793.	0.	79.	0.	833.	0.	0.	281.	6131.	21.	1403.
2005	0.	0.	499.	37.	462.	709.	0.	71.	0.	815.	0.	0.	215.	6346.	15.	1418.
2006	0.	0.	499.	45.	456.	837.	0.	84.	0.	693.	0.	0.	393.	6739.	25.	1443.
2007	0.	0.	499.	45.	454.	689.	0.	89.	0.	737.	0.	0.	417.	7156.	24.	1467.
2008	0.	0.	499.	49.	450.	983.	0.	98.	0.	815.	0.	0.	461.	7617.	24.	1491.
2009	0.	0.	499.	49.	450.	998.	0.	100.	0.	858.	0.	0.	452.	8069.	21.	1513.
2010	0.	0.	499.	96.	403.	1986.	0.	199.	0.	1028.	0.	0.	1253.	9323.	54.	1566.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: 1-2 ENG. JET
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	3.	0.	35.	5.	30.	35.	0.	4.	0.	24.	0.	0.	19.	19.	17.	17.
1979	4.	1.	38.	5.	33.	38.	0.	4.	0.	26.	0.	0.	18.	37.	15.	32.
1980	4.	0.	42.	6.	36.	43.	0.	4.	0.	30.	0.	0.	24.	61.	18.	50.
1981	5.	1.	46.	7.	39.	51.	0.	5.	0.	34.	0.	0.	28.	89.	19.	70.
1982	6.	1.	51.	8.	43.	60.	0.	6.	0.	39.	0.	0.	33.	123.	21.	90.
1983	3.	0.	54.	6.	48.	45.	0.	5.	0.	43.	0.	0.	19.	141.	11.	101.
1984	4.	1.	57.	6.	51.	45.	0.	5.	0.	45.	0.	0.	18.	159.	9.	110.
1985	6.	1.	62.	8.	54.	62.	0.	6.	0.	49.	0.	0.	31.	190.	14.	124.
1986	8.	1.	69.	11.	58.	87.	0.	9.	0.	56.	0.	0.	49.	239.	21.	145.
1987	5.	1.	73.	7.	66.	56.	0.	6.	0.	58.	0.	0.	20.	259.	8.	153.
1988	10.	1.	82.	13.	69.	106.	0.	11.	0.	66.	0.	0.	61.	321.	21.	174.
1989	8.	1.	89.	12.	77.	100.	0.	10.	0.	72.	0.	0.	52.	373.	17.	191.
1990	9.	3.	95.	11.	84.	203.	0.	20.	0.	94.	0.	0.	134.	507.	39.	230.
1991	9.	1.	103.	14.	89.	221.	0.	22.	0.	119.	0.	0.	137.	643.	36.	266.
1992	10.	3.	110.	14.	96.	220.	0.	22.	0.	142.	0.	0.	124.	767.	30.	296.
1993	9.	1.	118.	16.	102.	255.	0.	26.	0.	166.	0.	0.	143.	911.	31.	327.
1994	12.	3.	127.	15.	112.	243.	0.	24.	0.	193.	0.	0.	119.	1029.	23.	350.
1995	10.	3.	134.	13.	121.	214.	0.	21.	0.	208.	0.	0.	84.	1114.	15.	365.
1996	12.	3.	143.	17.	126.	264.	0.	28.	0.	234.	0.	0.	134.	1247.	22.	387.
1997	13.	3.	153.	21.	132.	356.	0.	36.	0.	256.	0.	0.	187.	1435.	28.	415.
1998	14.	4.	163.	17.	146.	293.	0.	29.	0.	266.	0.	0.	125.	1560.	17.	432.
1999	13.	3.	173.	35.	138.	612.	0.	61.	0.	322.	0.	0.	383.	1943.	47.	479.
2000	13.	3.	183.	13.	170.	231.	0.	23.	0.	319.	0.	0.	42.	1985.	5.	484.
2001	0.	0.	183.	8.	175.	144.	0.	14.	0.	305.	0.	0.	-29.	1956.	-3.	481.
2002	0.	0.	183.	14.	169.	256.	0.	26.	0.	311.	0.	0.	69.	2025.	6.	487.
2003	0.	0.	183.	14.	169.	260.	0.	26.	0.	307.	0.	0.	74.	2099.	6.	493.
2004	0.	0.	183.	16.	167.	302.	0.	30.	0.	300.	0.	0.	116.	2215.	9.	502.
2005	0.	0.	183.	15.	168.	287.	0.	29.	0.	299.	0.	0.	103.	2318.	7.	509.
2006	0.	0.	183.	13.	170.	253.	0.	25.	0.	248.	0.	0.	99.	2417.	6.	516.
2007	0.	0.	183.	17.	166.	336.	0.	34.	0.	263.	0.	0.	166.	2583.	9.	525.
2008	0.	0.	183.	21.	162.	421.	0.	42.	0.	302.	0.	0.	222.	2805.	12.	537.
2009	0.	0.	183.	17.	166.	346.	0.	35.	0.	315.	0.	0.	148.	2953.	7.	544.
2010	0.	0.	183.	35.	148.	724.	0.	72.	0.	381.	0.	0.	453.	3406.	20.	563.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: PISTON
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	691.	251.	12920.	1027.	11893.	7199.	0.	720.	0.	8584.	0.	0.	2015.	2015.	1832.	1832.
1979	731.	259.	13392.	1297.	12095.	9232.	0.	923.	0.	8816.	0.	0.	3724.	5740.	3078.	4910.
1980	926.	265.	14053.	1614.	12439.	11665.	0.	1167.	0.	9325.	0.	0.	5650.	11389.	4245.	9155.
1981	1147.	284.	14916.	1910.	13006.	14018.	0.	1402.	0.	10101.	0.	0.	7363.	18753.	5029.	14184.
1982	818.	297.	15437.	1645.	13792.	12259.	0.	1226.	0.	10560.	0.	0.	5542.	24295.	3441.	17625.
1983	585.	308.	15714.	1467.	14247.	11101.	0.	1110.	0.	10787.	0.	0.	4382.	28676.	2473.	20099.
1984	743.	313.	16144.	1678.	14466.	12894.	0.	1289.	0.	11195.	0.	0.	5783.	34459.	2968.	23066.
1985	835.	324.	16655.	1813.	14842.	14146.	0.	1415.	0.	12188.	0.	0.	6394.	40853.	2983.	26049.
1986	897.	334.	17218.	1914.	15304.	15165.	0.	1516.	0.	13035.	0.	0.	6870.	47723.	2913.	28962.
1987	923.	341.	17800.	1981.	15819.	15938.	0.	1594.	0.	13646.	0.	0.	7248.	54971.	2794.	31757.
1988	1697.	356.	19141.	2795.	16346.	22833.	0.	2283.	0.	14905.	0.	0.	12799.	67770.	4486.	36243.
1989	1283.	386.	20038.	1924.	18114.	15960.	0.	1596.	0.	15434.	0.	0.	6339.	74109.	2020.	38263.
1990	1350.	401.	21017.	2276.	18741.	42096.	0.	4210.	0.	19862.	0.	0.	27558.	101667.	7983.	46245.
1991	1452.	420.	22049.	2646.	19403.	41704.	0.	4170.	0.	23977.	0.	0.	25066.	126733.	6601.	52846.
1992	1527.	441.	23135.	2946.	20139.	47057.	0.	4706.	0.	28679.	0.	0.	27438.	154171.	6568.	59414.
1993	1595.	465.	24265.	2775.	21490.	44258.	0.	4426.	0.	32835.	0.	0.	22758.	176929.	4953.	64367.
1994	1674.	487.	25457.	2654.	22798.	43062.	0.	4306.	0.	36710.	0.	0.	19667.	196596.	3891.	68258.
1995	1740.	508.	26689.	2910.	23779.	47855.	0.	4785.	0.	40285.	0.	0.	22121.	218717.	3979.	72237.
1996	1837.	533.	27993.	3117.	24876.	52050.	0.	5205.	0.	45440.	0.	0.	23216.	241933.	3796.	76033.
1997	1900.	561.	29332.	3253.	26079.	55159.	0.	5516.	0.	47306.	0.	0.	25044.	266976.	3723.	79755.
1998	2038.	589.	30781.	3430.	27351.	59057.	0.	5906.	0.	49785.	0.	0.	27263.	294239.	3684.	83439.
1999	2111.	614.	32278.	3210.	28062.	108678.	0.	10868.	0.	58588.	0.	0.	67344.	361584.	8273.	91712.
2000	2111.	614.	33775.	2111.	31064.	37477.	0.	3748.	0.	57620.	0.	0.	3767.	365351.	421.	92133.
2001	0.	0.	33775.	1062.	32113.	29961.	0.	2996.	0.	55748.	0.	0.	-2024.	363327.	-205.	91928.
2002	0.	0.	33775.	2046.	31129.	48436.	0.	4844.	0.	55831.	0.	0.	14560.	377887.	1344.	93271.
2003	0.	0.	33775.	2996.	30779.	55689.	0.	5569.	0.	56351.	0.	0.	20818.	398705.	1747.	95018.
2004	0.	0.	33775.	2775.	31000.	52377.	0.	5238.	0.	55954.	0.	0.	18044.	416749.	1376.	96394.
2005	0.	0.	33775.	2059.	31116.	50962.	0.	5096.	0.	54797.	0.	0.	17371.	434120.	1205.	97599.
2006	0.	0.	33775.	2910.	30865.	56633.	0.	5663.	0.	47362.	0.	0.	26342.	460462.	1661.	99260.
2007	0.	0.	33775.	3117.	30658.	61598.	0.	6160.	0.	50808.	0.	0.	29018.	489480.	1663.	100923.
2008	0.	0.	33775.	3253.	30522.	65278.	0.	6528.	0.	55853.	0.	0.	29706.	519186.	1548.	102470.
2009	0.	0.	33775.	3430.	30345.	69891.	0.	6989.	0.	58918.	0.	0.	32265.	551451.	1528.	103998.
2010	0.	0.	33775.	6216.	27559.	128615.	0.	12861.	0.	69336.	0.	0.	79698.	631149.	3432.	107430.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: HELICOPTER
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	2.	0.	36.	4.	32.	28.	0.	3.	0.	25.	0.	0.	12.	12.	11.	11.
1979	2.	1.	37.	5.	34.	21.	0.	2.	0.	24.	0.	0.	7.	19.	5.	17.
1980	2.	0.	39.	4.	35.	29.	0.	3.	0.	26.	0.	0.	13.	32.	10.	26.
1981	4.	1.	42.	6.	36.	44.	0.	4.	0.	28.	0.	0.	25.	57.	17.	43.
1982	2.	0.	44.	5.	39.	37.	0.	4.	0.	31.	0.	0.	18.	74.	11.	54.
1983	2.	2.	44.	4.	40.	30.	0.	3.	0.	31.	0.	0.	11.	85.	6.	60.
1984	1.	0.	45.	4.	41.	31.	0.	3.	0.	32.	0.	0.	11.	96.	6.	66.
1985	3.	2.	46.	5.	41.	39.	0.	4.	0.	33.	0.	0.	18.	114.	8.	75.
1986	0.	0.	46.	3.	43.	24.	0.	2.	0.	33.	0.	0.	4.	118.	2.	76.
1987	3.	2.	47.	5.	42.	40.	0.	4.	0.	35.	0.	0.	18.	136.	7.	83.
1988	0.	1.	46.	3.	43.	25.	0.	2.	0.	32.	0.	0.	5.	142.	2.	85.
1989	3.	1.	48.	6.	42.	50.	0.	5.	0.	34.	0.	0.	27.	169.	9.	94.
1990	4.	1.	51.	6.	45.	111.	0.	11.	0.	46.	0.	0.	76.	245.	22.	116.
1991	2.	0.	53.	6.	47.	95.	0.	9.	0.	55.	0.	0.	57.	302.	15.	131.
1992	4.	1.	56.	9.	47.	141.	0.	14.	0.	69.	0.	0.	91.	393.	22.	152.
1993	3.	2.	57.	6.	51.	96.	0.	10.	0.	80.	0.	0.	45.	438.	10.	162.
1994	3.	0.	60.	7.	53.	113.	0.	11.	0.	90.	0.	0.	55.	493.	11.	173.
1995	4.	2.	62.	6.	56.	99.	0.	10.	0.	101.	0.	0.	36.	529.	7.	180.
1996	5.	2.	65.	8.	57.	134.	0.	13.	0.	113.	0.	0.	62.	591.	10.	190.
1997	3.	1.	67.	5.	62.	85.	0.	8.	0.	109.	0.	0.	20.	611.	3.	193.
1998	5.	2.	70.	8.	62.	138.	0.	14.	0.	115.	0.	0.	64.	675.	9.	201.
1999	5.	2.	73.	12.	61.	210.	0.	21.	0.	125.	0.	0.	124.	799.	15.	217.
2000	5.	2.	76.	5.	71.	89.	0.	9.	0.	124.	0.	0.	16.	814.	2.	218.
2001	0.	0.	76.	4.	72.	72.	0.	7.	0.	118.	0.	0.	4.	818.	0.	219.
2002	0.	0.	76.	6.	70.	110.	0.	11.	0.	120.	0.	0.	37.	854.	3.	222.
2003	0.	0.	76.	9.	67.	167.	0.	17.	0.	124.	0.	0.	86.	940.	7.	229.
2004	0.	0.	76.	6.	70.	113.	0.	11.	0.	128.	0.	0.	35.	976.	3.	232.
2005	0.	0.	76.	7.	69.	130.	0.	13.	0.	128.	0.	0.	54.	1030.	4.	236.
2006	0.	0.	76.	6.	70.	117.	0.	12.	0.	115.	0.	0.	46.	1075.	3.	239.
2007	0.	0.	76.	8.	68.	158.	0.	16.	0.	125.	0.	0.	78.	1153.	4.	243.
2008	0.	0.	76.	5.	71.	100.	0.	10.	0.	129.	0.	0.	23.	1176.	1.	244.
2009	0.	0.	76.	8.	68.	163.	0.	16.	0.	136.	0.	0.	76.	1252.	4.	248.
2010	0.	0.	76.	12.	64.	248.	0.	25.	0.	148.	0.	0.	147.	1399.	6.	254.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: PISTON
REGION(S): CONUS ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	0.	0.	12.	1.	11.	7.	0.	1.	0.	9.	0.	0.	2.	2.	2.	2.
1979	1.	0.	13.	1.	12.	7.	0.	1.	0.	8.	0.	0.	2.	4.	2.	4.
1980	2.	0.	15.	3.	12.	22.	0.	2.	0.	10.	0.	0.	14.	19.	11.	14.
1981	1.	0.	16.	2.	14.	15.	0.	1.	0.	11.	0.	0.	7.	26.	5.	19.
1982	1.	0.	17.	2.	15.	15.	0.	1.	0.	12.	0.	0.	7.	33.	4.	24.
1983	1.	1.	17.	2.	15.	15.	0.	2.	0.	12.	0.	0.	7.	40.	4.	28.
1984	2.	2.	17.	2.	15.	15.	0.	2.	0.	14.	0.	0.	7.	47.	3.	31.
1985	0.	0.	17.	0.	17.	0.	0.	0.	0.	13.	0.	0.	-7.	40.	-3.	28.
1986	3.	2.	18.	3.	15.	24.	0.	2.	0.	15.	0.	0.	14.	54.	6.	34.
1987	2.	0.	20.	3.	17.	24.	0.	2.	0.	15.	0.	0.	14.	68.	5.	39.
1988	3.	2.	21.	3.	18.	25.	0.	2.	0.	17.	0.	0.	13.	81.	5.	44.
1989	3.	2.	22.	3.	19.	25.	0.	2.	0.	18.	0.	0.	13.	94.	4.	48.
1990	2.	0.	24.	2.	22.	37.	0.	4.	0.	21.	0.	0.	22.	116.	6.	54.
1991	1.	0.	25.	3.	22.	47.	0.	5.	0.	26.	0.	0.	29.	145.	8.	62.
1992	3.	2.	26.	3.	23.	47.	0.	5.	0.	33.	0.	0.	25.	170.	6.	68.
1993	3.	2.	27.	3.	24.	48.	0.	5.	0.	36.	0.	0.	24.	195.	5.	73.
1994	3.	1.	29.	4.	25.	65.	0.	6.	0.	42.	0.	0.	37.	231.	7.	81.
1995	4.	2.	31.	4.	27.	66.	0.	7.	0.	48.	0.	0.	34.	266.	6.	87.
1996	3.	0.	34.	3.	31.	50.	0.	5.	0.	51.	0.	0.	18.	284.	3.	90.
1997	3.	2.	35.	4.	31.	68.	0.	7.	0.	56.	0.	0.	32.	316.	5.	95.
1998	4.	4.	35.	4.	31.	69.	0.	7.	0.	59.	0.	0.	31.	347.	4.	99.
1999	3.	0.	38.	8.	30.	140.	0.	14.	0.	72.	0.	0.	88.	436.	11.	110.
2000	3.	0.	41.	3.	38.	53.	0.	5.	0.	73.	0.	0.	10.	446.	1.	111.
2001	0.	0.	41.	2.	39.	36.	0.	4.	0.	69.	0.	0.	-3.	442.	-0.	111.
2002	0.	0.	41.	3.	38.	55.	0.	5.	0.	67.	0.	0.	14.	457.	1.	112.
2003	0.	0.	41.	3.	38.	56.	0.	6.	0.	68.	0.	0.	15.	471.	1.	113.
2004	0.	0.	41.	5.	38.	57.	0.	6.	0.	66.	0.	0.	16.	488.	1.	114.
2005	0.	0.	41.	4.	37.	77.	0.	8.	0.	68.	0.	0.	34.	522.	2.	117.
2006	0.	0.	41.	4.	37.	78.	0.	8.	0.	59.	0.	0.	40.	561.	2.	119.
2007	0.	0.	41.	3.	38.	59.	0.	6.	0.	60.	0.	0.	22.	584.	1.	120.
2008	0.	0.	41.	4.	37.	80.	0.	8.	0.	66.	0.	0.	38.	622.	2.	122.
2009	0.	0.	41.	4.	37.	82.	0.	8.	0.	70.	0.	0.	37.	659.	2.	124.
2010	0.	0.	41.	8.	33.	166.	0.	17.	0.	85.	0.	0.	105.	763.	5.	129.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: PISTON
REGION(S): ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	13.	6.	178.	15.	163.	105.	0.	11.	0.	119.	0.	0.	33.	33.	30.	30.
1979	15.	2.	191.	24.	187.	171.	0.	17.	0.	128.	0.	0.	87.	120.	72.	102.
1980	15.	4.	202.	24.	178.	173.	0.	17.	0.	137.	0.	0.	85.	205.	64.	166.
1981	21.	6.	217.	30.	187.	220.	0.	22.	0.	152.	0.	0.	119.	324.	81.	247.
1982	14.	2.	229.	27.	202.	201.	0.	20.	0.	163.	0.	0.	97.	421.	60.	307.
1983	13.	5.	237.	24.	213.	182.	0.	18.	0.	170.	0.	0.	75.	496.	42.	349.
1984	14.	5.	246.	27.	219.	207.	0.	21.	0.	180.	0.	0.	93.	589.	48.	397.
1985	15.	4.	257.	25.	229.	218.	0.	22.	0.	196.	0.	0.	95.	683.	44.	441.
1986	18.	5.	270.	32.	238.	258.	0.	25.	0.	208.	0.	0.	120.	803.	51.	492.
1987	14.	3.	281.	30.	251.	241.	0.	24.	0.	218.	0.	0.	104.	907.	40.	532.
1988	33.	7.	309.	48.	261.	392.	0.	39.	0.	242.	0.	0.	227.	1134.	80.	612.
1989	22.	6.	325.	31.	294.	257.	0.	26.	0.	250.	0.	0.	101.	1236.	32.	644.
1990	27.	6.	346.	45.	301.	832.	0.	83.	0.	343.	0.	0.	571.	1806.	165.	809.
1991	29.	7.	365.	46.	322.	725.	0.	73.	0.	417.	0.	0.	436.	2242.	115.	924.
1992	31.	10.	389.	51.	338.	801.	0.	80.	0.	500.	0.	0.	461.	2703.	110.	1034.
1993	31.	6.	414.	52.	362.	829.	0.	83.	0.	583.	0.	0.	443.	3146.	97.	1131.
1994	31.	7.	438.	48.	390.	777.	0.	78.	0.	659.	0.	0.	357.	3503.	71.	1202.
1995	33.	7.	464.	53.	411.	872.	0.	87.	0.	728.	0.	0.	406.	3909.	73.	1275.
1996	40.	12.	492.	56.	436.	935.	0.	94.	0.	825.	0.	0.	413.	4322.	68.	1342.
1997	54.	9.	521.	61.	460.	1038.	0.	103.	0.	853.	0.	0.	487.	4809.	72.	1414.
1998	43.	12.	552.	61.	491.	1050.	0.	105.	0.	900.	0.	0.	477.	5286.	65.	1479.
1999	46.	11.	586.	113.	473.	1976.	0.	198.	0.	1068.	0.	0.	1223.	6509.	150.	1629.
2000	45.	11.	620.	45.	575.	799.	0.	80.	0.	1063.	0.	0.	166.	6675.	19.	1648.
2001	0.	0.	620.	34.	586.	613.	0.	61.	0.	1040.	0.	0.	11.	6686.	1.	1649.
2002	0.	0.	620.	46.	574.	842.	0.	84.	0.	1036.	0.	0.	219.	6905.	20.	1669.
2003	0.	0.	620.	51.	569.	948.	0.	95.	0.	1037.	0.	0.	314.	7219.	26.	1695.
2004	0.	0.	620.	52.	568.	981.	0.	98.	0.	1030.	0.	0.	348.	7567.	27.	1722.
2005	0.	0.	620.	48.	572.	920.	0.	92.	0.	1011.	0.	0.	302.	7869.	21.	1743.
2006	0.	0.	620.	53.	567.	1031.	0.	103.	0.	876.	0.	0.	473.	8342.	30.	1773.
2007	0.	0.	620.	56.	564.	1107.	0.	111.	0.	920.	0.	0.	517.	8859.	30.	1802.
2008	0.	0.	620.	61.	559.	1224.	0.	122.	0.	1008.	0.	0.	578.	9437.	30.	1832.
2009	0.	0.	620.	61.	559.	1243.	0.	124.	0.	1065.	0.	0.	565.	10002.	27.	1859.
2010	0.	0.	620.	113.	507.	2338.	0.	234.	0.	1264.	0.	0.	1447.	11449.	62.	1921.

SHOPT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: PISTON
REGION(S): ALASKA AKA OFF-SH

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	0.	0.	5.	0.	10.	0.	0.	0.	0.	9.	0.	0.	-5.	-5.	-4.	-4.
1979	0.	0.	5.	2.	8.	22.	0.	2.	0.	12.	0.	0.	13.	9.	11.	7.
1980	0.	0.	5.	0.	10.	0.	0.	0.	0.	9.	0.	0.	-5.	4.	-4.	3.
1981	2.	0.	7.	4.	10.	43.	0.	4.	0.	15.	0.	0.	31.	35.	21.	24.
1982	0.	0.	7.	2.	12.	22.	0.	2.	0.	15.	0.	0.	11.	46.	7.	31.
1983	0.	0.	7.	0.	14.	0.	0.	0.	0.	15.	0.	0.	-8.	38.	-5.	27.
1984	0.	0.	7.	2.	12.	22.	0.	2.	0.	15.	0.	0.	12.	50.	6.	33.
1985	0.	0.	7.	0.	14.	0.	0.	0.	0.	15.	0.	0.	-8.	41.	-4.	29.
1986	0.	0.	7.	2.	12.	22.	0.	2.	0.	15.	0.	0.	12.	53.	5.	34.
1987	0.	0.	7.	0.	14.	0.	0.	0.	0.	15.	0.	0.	-8.	45.	-3.	31.
1988	2.	0.	9.	6.	12.	67.	0.	7.	0.	19.	0.	0.	50.	95.	18.	48.
1989	0.	0.	9.	0.	18.	0.	0.	0.	0.	16.	0.	0.	-8.	87.	-3.	46.
1990	0.	0.	9.	1.	16.	18.	0.	2.	0.	18.	0.	0.	7.	94.	2.	48.
1991	0.	0.	9.	0.	17.	0.	0.	0.	0.	15.	0.	0.	-8.	86.	-2.	46.
1992	2.	0.	11.	4.	13.	63.	0.	6.	0.	24.	0.	0.	44.	130.	11.	56.
1993	0.	0.	11.	1.	15.	16.	0.	2.	0.	23.	0.	0.	2.	132.	0.	57.
1994	2.	0.	13.	2.	16.	32.	0.	3.	0.	28.	0.	0.	15.	147.	3.	60.
1995	0.	0.	13.	1.	16.	16.	0.	2.	0.	21.	0.	0.	4.	151.	1.	60.
1996	2.	0.	15.	2.	17.	33.	0.	3.	0.	26.	0.	0.	17.	168.	3.	63.
1997	1.	0.	16.	2.	17.	34.	0.	3.	0.	28.	0.	0.	16.	184.	2.	65.
1998	1.	0.	17.	1.	19.	17.	0.	2.	0.	30.	0.	0.	-0.	183.	-0.	65.
1999	0.	0.	17.	5.	14.	52.	0.	5.	0.	29.	0.	0.	32.	216.	4.	69.
2000	0.	0.	17.	0.	17.	0.	0.	0.	0.	27.	0.	0.	-14.	202.	-2.	68.
2001	0.	0.	17.	1.	16.	18.	0.	2.	0.	24.	0.	0.	3.	205.	0.	68.
2002	0.	0.	17.	0.	17.	0.	0.	0.	0.	22.	0.	0.	-12.	194.	-1.	67.
2003	0.	0.	17.	4.	13.	74.	0.	7.	0.	28.	0.	0.	52.	246.	4.	71.
2004	0.	0.	17.	1.	16.	19.	0.	2.	0.	26.	0.	0.	4.	250.	0.	72.
2005	0.	0.	17.	2.	15.	38.	0.	4.	0.	29.	0.	0.	19.	269.	1.	73.
2006	0.	0.	17.	1.	16.	19.	0.	2.	0.	24.	0.	0.	5.	274.	0.	73.
2007	0.	0.	17.	2.	15.	40.	0.	4.	0.	30.	0.	0.	20.	294.	1.	75.
2008	0.	0.	17.	2.	15.	40.	0.	4.	0.	33.	0.	0.	19.	313.	1.	75.
2009	0.	0.	17.	1.	16.	20.	0.	2.	0.	36.	0.	0.	-0.	313.	-0.	75.
2010	0.	0.	17.	3.	14.	62.	0.	6.	0.	34.	0.	0.	38.	351.	2.	77.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA
USER GROUP: PER-OTHER
AIRCRAFT TYPE: PISTON
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	588.	188.	9851.	768.	9083.	5383.	0.	0.	0.	0.	0.	0.	5383.	5383.	4894.	4894.
1979	536.	198.	10189.	966.	9221.	6890.	0.	0.	0.	0.	0.	0.	6890.	12273.	5694.	10588.
1980	647.	205.	10671.	1210.	9461.	8745.	0.	0.	0.	0.	0.	0.	8745.	21018.	6570.	17159.
1981	843.	213.	11301.	1430.	9871.	10495.	0.	0.	0.	0.	0.	0.	10495.	31513.	7168.	24327.
1982	599.	227.	11673.	1230.	10443.	9166.	0.	0.	0.	0.	0.	0.	9166.	40680.	5692.	30018.
1983	416.	232.	11857.	1093.	10764.	8271.	0.	0.	0.	0.	0.	0.	8271.	48951.	4669.	34687.
1984	540.	240.	12157.	1253.	10904.	9628.	0.	0.	0.	0.	0.	0.	9628.	58579.	4941.	39628.
1985	404.	242.	12519.	1356.	11163.	10580.	0.	0.	0.	0.	0.	0.	10580.	69159.	4936.	44563.
1986	645.	250.	12914.	1427.	11487.	11306.	0.	0.	0.	0.	0.	0.	11306.	80465.	4795.	49358.
1987	667.	257.	13324.	1479.	11845.	11899.	0.	0.	0.	0.	0.	0.	11899.	92364.	4588.	53946.
1988	1131.	265.	14190.	1976.	12214.	16143.	0.	0.	0.	0.	0.	0.	16143.	108506.	5658.	59604.
1989	920.	287.	14823.	1401.	13422.	11622.	0.	0.	0.	0.	0.	0.	11622.	120128.	3703.	63307.
1990	945.	298.	15520.	1665.	13855.	30795.	0.	0.	0.	0.	0.	0.	30795.	150924.	8920.	72227.
1991	1039.	309.	16250.	1940.	14310.	30577.	0.	0.	0.	0.	0.	0.	30577.	181500.	8052.	80279.
1992	1091.	324.	17017.	2197.	14820.	34507.	0.	0.	0.	0.	0.	0.	34507.	216008.	8261.	88540.
1993	1138.	341.	17814.	2027.	15787.	32328.	0.	0.	0.	0.	0.	0.	32328.	248336.	7036.	95575.
1994	1197.	355.	18656.	1935.	16721.	31337.	0.	0.	0.	0.	0.	0.	31337.	279673.	6200.	101775.
1995	1246.	376.	19526.	2123.	17403.	34912.	0.	0.	0.	0.	0.	0.	34912.	314586.	6279.	108054.
1996	1310.	392.	20450.	2280.	18170.	38073.	0.	0.	0.	0.	0.	0.	38073.	352659.	6225.	114280.
1997	1348.	407.	21391.	2369.	19023.	40152.	0.	0.	0.	0.	0.	0.	40152.	392811.	5968.	120248.
1998	1451.	427.	22415.	2503.	19912.	43096.	0.	0.	0.	0.	0.	0.	43096.	435907.	5824.	126072.
1999	1501.	451.	23465.	4427.	19038.	77400.	0.	0.	0.	0.	0.	0.	77400.	513307.	9508.	135580.
2000	1501.	451.	24515.	1501.	23014.	26648.	0.	0.	0.	0.	0.	0.	26648.	539955.	2976.	138555.
2001	0.	0.	24515.	1214.	23301.	21885.	0.	0.	0.	0.	0.	0.	21885.	561840.	2222.	140778.
2002	0.	0.	24515.	1940.	22575.	35513.	0.	0.	0.	0.	0.	0.	35513.	597353.	3278.	144056.
2003	0.	0.	24515.	2197.	22318.	40838.	0.	0.	0.	0.	0.	0.	40838.	638190.	3426.	147482.
2004	0.	0.	24515.	2027.	22488.	38259.	0.	0.	0.	0.	0.	0.	38259.	676449.	2918.	150400.
2005	0.	0.	24515.	1935.	22580.	37086.	0.	0.	0.	0.	0.	0.	37086.	713535.	2572.	152972.
2006	0.	0.	24515.	2123.	22392.	41317.	0.	0.	0.	0.	0.	0.	41317.	754852.	2605.	155577.
2007	0.	0.	24515.	2280.	22235.	45057.	0.	0.	0.	0.	0.	0.	45057.	799910.	2582.	158159.
2008	0.	0.	24515.	2368.	22147.	47518.	0.	0.	0.	0.	0.	0.	47518.	847428.	2476.	160634.
2009	0.	0.	24515.	2503.	22012.	51002.	0.	0.	0.	0.	0.	0.	51002.	898431.	2416.	163050.
2010	0.	0.	24515.	4427.	20088.	91599.	0.	0.	0.	0.	0.	0.	91599.	990029.	3944.	166994.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA
USER GROUP: PER-OTHER
AIRCRAFT TYPE: HELICOPTER
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	1.	0.	39.	3.	36.	21.	0.	0.	0.	0.	0.	0.	21.	21.	19.	19.
1979	1.	1.	39.	2.	37.	14.	0.	0.	0.	0.	0.	0.	14.	35.	12.	31.
1980	3.	1.	41.	5.	36.	36.	0.	0.	0.	0.	0.	0.	36.	71.	27.	58.
1981	4.	1.	44.	6.	38.	44.	0.	0.	0.	0.	0.	0.	44.	115.	30.	88.
1982	2.	0.	46.	6.	40.	45.	0.	0.	0.	0.	0.	0.	45.	160.	28.	116.
1983	1.	1.	46.	3.	43.	23.	0.	0.	0.	0.	0.	0.	23.	183.	13.	129.
1984	0.	0.	46.	4.	42.	31.	0.	0.	0.	0.	0.	0.	31.	214.	16.	144.
1985	5.	2.	49.	7.	42.	55.	0.	0.	0.	0.	0.	0.	55.	268.	25.	170.
1986	1.	0.	50.	5.	45.	40.	0.	0.	0.	0.	0.	0.	40.	308.	17.	187.
1987	3.	1.	52.	7.	45.	56.	0.	0.	0.	0.	0.	0.	56.	364.	22.	208.
1988	0.	1.	51.	3.	48.	25.	0.	0.	0.	0.	0.	0.	25.	389.	9.	217.
1989	4.	2.	53.	5.	48.	41.	0.	0.	0.	0.	0.	0.	41.	430.	13.	230.
1990	4.	1.	56.	5.	51.	92.	0.	0.	0.	0.	0.	0.	92.	523.	27.	257.
1991	3.	0.	59.	8.	51.	126.	0.	0.	0.	0.	0.	0.	126.	649.	33.	290.
1992	4.	1.	62.	9.	53.	141.	0.	0.	0.	0.	0.	0.	141.	790.	34.	324.
1993	6.	2.	66.	10.	56.	159.	0.	0.	0.	0.	0.	0.	159.	950.	35.	359.
1994	3.	0.	69.	6.	63.	97.	0.	0.	0.	0.	0.	0.	97.	1047.	19.	378.
1995	4.	1.	72.	7.	65.	115.	0.	0.	0.	0.	0.	0.	115.	1162.	21.	399.
1996	6.	2.	76.	11.	65.	184.	0.	0.	0.	0.	0.	0.	184.	1346.	30.	429.
1997	4.	1.	79.	8.	71.	136.	0.	0.	0.	0.	0.	0.	136.	1481.	20.	449.
1998	4.	0.	83.	11.	72.	189.	0.	0.	0.	0.	0.	0.	189.	1671.	26.	475.
1999	6.	2.	87.	12.	75.	210.	0.	0.	0.	0.	0.	0.	210.	1880.	26.	500.
2000	6.	2.	91.	9.	85.	107.	0.	0.	0.	0.	0.	0.	107.	1987.	12.	512.
2001	0.	0.	91.	3.	88.	54.	0.	0.	0.	0.	0.	0.	54.	2041.	5.	518.
2002	0.	0.	91.	8.	83.	146.	0.	0.	0.	0.	0.	0.	146.	2187.	14.	531.
2003	0.	0.	91.	9.	82.	167.	0.	0.	0.	0.	0.	0.	167.	2355.	14.	545.
2004	0.	0.	91.	10.	81.	189.	0.	0.	0.	0.	0.	0.	189.	2543.	14.	560.
2005	0.	0.	91.	6.	85.	115.	0.	0.	0.	0.	0.	0.	115.	2658.	8.	568.
2006	0.	0.	91.	7.	84.	136.	0.	0.	0.	0.	0.	0.	136.	2795.	9.	576.
2007	0.	0.	91.	11.	80.	217.	0.	0.	0.	0.	0.	0.	217.	3012.	12.	589.
2008	0.	0.	91.	8.	83.	161.	0.	0.	0.	0.	0.	0.	161.	3173.	8.	597.
2009	0.	0.	91.	11.	80.	224.	0.	0.	0.	0.	0.	0.	224.	3397.	11.	608.
2010	0.	0.	91.	12.	79.	248.	0.	0.	0.	0.	0.	0.	248.	3645.	11.	618.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA
USER GROUP: PER-OTHER
AIRCRAFT TYPE: PISTON
REGION(S): CONUS ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	0.	0.	26.	1.	25.	7.	0.	0.	0.	0.	0.	0.	7.	7.	6.	6.
1979	0.	0.	26.	2.	24.	14.	0.	0.	0.	0.	0.	0.	14.	21.	12.	18.
1980	4.	1.	29.	5.	24.	36.	0.	0.	0.	0.	0.	0.	36.	57.	27.	45.
1981	3.	1.	31.	4.	27.	29.	0.	0.	0.	0.	0.	0.	29.	87.	20.	65.
1982	2.	0.	33.	4.	29.	30.	0.	0.	0.	0.	0.	0.	30.	117.	19.	84.
1983	1.	0.	34.	4.	30.	30.	0.	0.	0.	0.	0.	0.	30.	147.	17.	101.
1984	2.	1.	35.	4.	31.	31.	0.	0.	0.	0.	0.	0.	31.	178.	16.	117.
1985	0.	0.	35.	2.	33.	16.	0.	0.	0.	0.	0.	0.	16.	193.	7.	124.
1986	4.	1.	38.	6.	32.	48.	0.	0.	0.	0.	0.	0.	48.	241.	20.	144.
1987	2.	1.	39.	4.	35.	32.	0.	0.	0.	0.	0.	0.	32.	273.	12.	157.
1988	3.	0.	42.	6.	36.	49.	0.	0.	0.	0.	0.	0.	49.	322.	17.	174.
1989	2.	1.	43.	2.	41.	17.	0.	0.	0.	0.	0.	0.	17.	338.	5.	179.
1990	4.	1.	46.	5.	41.	92.	0.	0.	0.	0.	0.	0.	92.	431.	27.	206.
1991	3.	1.	48.	7.	41.	110.	0.	0.	0.	0.	0.	0.	110.	541.	29.	235.
1992	3.	0.	51.	7.	44.	110.	0.	0.	0.	0.	0.	0.	110.	651.	26.	261.
1993	4.	1.	54.	7.	47.	112.	0.	0.	0.	0.	0.	0.	112.	763.	24.	285.
1994	4.	1.	57.	7.	50.	113.	0.	0.	0.	0.	0.	0.	113.	876.	22.	308.
1995	3.	1.	59.	6.	53.	99.	0.	0.	0.	0.	0.	0.	99.	975.	18.	326.
1996	3.	0.	62.	5.	57.	83.	0.	0.	0.	0.	0.	0.	83.	1058.	14.	339.
1997	4.	1.	65.	9.	56.	153.	0.	0.	0.	0.	0.	0.	153.	1211.	23.	362.
1998	6.	2.	69.	8.	61.	138.	0.	0.	0.	0.	0.	0.	138.	1349.	19.	381.
1999	8.	1.	72.	11.	61.	192.	0.	0.	0.	0.	0.	0.	192.	1541.	24.	404.
2000	4.	1.	75.	4.	71.	71.	0.	0.	0.	0.	0.	0.	71.	1612.	8.	412.
2001	0.	0.	75.	4.	71.	72.	0.	0.	0.	0.	0.	0.	72.	1684.	7.	419.
2002	0.	0.	75.	7.	68.	128.	0.	0.	0.	0.	0.	0.	128.	1812.	12.	431.
2003	0.	0.	75.	7.	68.	130.	0.	0.	0.	0.	0.	0.	130.	1942.	11.	442.
2004	0.	0.	75.	7.	68.	132.	0.	0.	0.	0.	0.	0.	132.	2075.	10.	452.
2005	0.	0.	75.	7.	68.	134.	0.	0.	0.	0.	0.	0.	134.	2209.	9.	461.
2006	0.	0.	75.	6.	69.	117.	0.	0.	0.	0.	0.	0.	117.	2326.	7.	469.
2007	0.	0.	75.	5.	70.	99.	0.	0.	0.	0.	0.	0.	99.	2424.	6.	475.
2008	0.	0.	75.	9.	66.	181.	0.	0.	0.	0.	0.	0.	181.	2605.	9.	484.
2009	0.	0.	75.	8.	67.	163.	0.	0.	0.	0.	0.	0.	163.	2768.	8.	492.
2010	0.	0.	75.	11.	64.	228.	0.	0.	0.	0.	0.	0.	228.	2996.	10.	502.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA
USER GROUP: PER-OTHER
AIRCRAFT TYPE: PISTON
REGION(S): CONUS CONUS OFF-SH

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	0.	0.	24.	2.	46.	22.	0.	0.	0.	0.	0.	0.	22.	22.	20.	20.
1979	2.	1.	25.	6.	44.	65.	0.	0.	0.	0.	0.	0.	65.	87.	54.	73.
1980	1.	0.	26.	6.	46.	65.	0.	0.	0.	0.	0.	0.	65.	152.	49.	122.
1981	3.	1.	28.	8.	48.	86.	0.	0.	0.	0.	0.	0.	86.	238.	59.	181.
1982	0.	0.	28.	4.	52.	43.	0.	0.	0.	0.	0.	0.	43.	281.	27.	208.
1983	2.	1.	29.	6.	52.	65.	0.	0.	0.	0.	0.	0.	65.	346.	37.	244.
1984	0.	0.	29.	4.	54.	43.	0.	0.	0.	0.	0.	0.	43.	389.	22.	267.
1985	2.	1.	30.	8.	52.	87.	0.	0.	0.	0.	0.	0.	87.	476.	41.	307.
1986	2.	1.	31.	8.	54.	88.	0.	0.	0.	0.	0.	0.	88.	564.	37.	345.
1987	1.	0.	32.	6.	58.	66.	0.	0.	0.	0.	0.	0.	66.	630.	26.	370.
1988	2.	1.	33.	8.	58.	89.	0.	0.	0.	0.	0.	0.	89.	719.	31.	401.
1989	2.	1.	34.	4.	64.	45.	0.	0.	0.	0.	0.	0.	45.	763.	14.	415.
1990	2.	0.	36.	5.	62.	92.	0.	0.	0.	0.	0.	0.	92.	856.	27.	442.
1991	2.	1.	37.	4.	61.	63.	0.	0.	0.	0.	0.	0.	63.	919.	17.	459.
1992	3.	1.	39.	6.	57.	94.	0.	0.	0.	0.	0.	0.	94.	1013.	23.	481.
1993	1.	0.	40.	3.	59.	48.	0.	0.	0.	0.	0.	0.	48.	1061.	10.	492.
1994	3.	1.	42.	5.	56.	81.	0.	0.	0.	0.	0.	0.	81.	1142.	16.	508.
1995	3.	1.	44.	4.	57.	66.	0.	0.	0.	0.	0.	0.	66.	1208.	12.	520.
1996	3.	1.	46.	6.	53.	100.	0.	0.	0.	0.	0.	0.	100.	1308.	16.	536.
1997	3.	1.	48.	6.	51.	102.	0.	0.	0.	0.	0.	0.	102.	1410.	15.	551.
1998	3.	1.	50.	5.	51.	86.	0.	0.	0.	0.	0.	0.	86.	1496.	12.	563.
1999	3.	1.	52.	8.	44.	140.	0.	0.	0.	0.	0.	0.	140.	1636.	17.	580.
2000	3.	1.	54.	3.	51.	53.	0.	0.	0.	0.	0.	0.	53.	1689.	6.	586.
2001	0.	0.	54.	4.	50.	72.	0.	0.	0.	0.	0.	0.	72.	1761.	7.	593.
2002	0.	0.	54.	4.	50.	73.	0.	0.	0.	0.	0.	0.	73.	1834.	7.	600.
2003	0.	0.	54.	6.	48.	112.	0.	0.	0.	0.	0.	0.	112.	1946.	9.	609.
2004	0.	0.	54.	3.	51.	57.	0.	0.	0.	0.	0.	0.	57.	2002.	4.	614.
2005	0.	0.	54.	5.	49.	96.	0.	0.	0.	0.	0.	0.	96.	2098.	7.	620.
2006	0.	0.	54.	4.	50.	78.	0.	0.	0.	0.	0.	0.	78.	2176.	5.	625.
2007	0.	0.	54.	6.	48.	119.	0.	0.	0.	0.	0.	0.	119.	2295.	7.	632.
2008	0.	0.	54.	6.	48.	120.	0.	0.	0.	0.	0.	0.	120.	2415.	6.	638.
2009	0.	0.	54.	5.	49.	102.	0.	0.	0.	0.	0.	0.	102.	2517.	5.	643.
2010	0.	0.	54.	8.	46.	166.	0.	0.	0.	0.	0.	0.	166.	2683.	7.	650.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA
USER GROUP: PER-OTHER
AIRCRAFT TYPE: HELICOPTER
REGION(S): CONUS CONUS OFF-SH

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	2.	1.	21.	4.	36.	43.	0.	0.	0.	0.	0.	0.	43.	43.	39.	39.
1979	1.	0.	22.	4.	40.	43.	0.	0.	0.	0.	0.	0.	43.	87.	36.	75.
1980	2.	1.	23.	6.	40.	65.	0.	0.	0.	0.	0.	0.	65.	152.	49.	124.
1981	1.	0.	24.	4.	44.	43.	0.	0.	0.	0.	0.	0.	43.	195.	29.	153.
1982	1.	0.	25.	6.	44.	65.	0.	0.	0.	0.	0.	0.	65.	259.	40.	194.
1983	2.	1.	26.	6.	46.	65.	0.	0.	0.	0.	0.	0.	65.	324.	37.	230.
1984	1.	0.	27.	6.	48.	65.	0.	0.	0.	0.	0.	0.	65.	389.	33.	264.
1985	2.	1.	28.	6.	50.	65.	0.	0.	0.	0.	0.	0.	65.	455.	31.	294.
1986	1.	0.	29.	6.	52.	66.	0.	0.	0.	0.	0.	0.	66.	520.	28.	322.
1987	2.	1.	30.	8.	52.	88.	0.	0.	0.	0.	0.	0.	88.	609.	34.	356.
1988	1.	0.	31.	6.	56.	67.	0.	0.	0.	0.	0.	0.	67.	675.	23.	379.
1989	2.	1.	32.	6.	56.	67.	0.	0.	0.	0.	0.	0.	67.	742.	21.	401.
1990	3.	1.	34.	4.	60.	74.	0.	0.	0.	0.	0.	0.	74.	815.	21.	422.
1991	2.	0.	36.	5.	55.	79.	0.	0.	0.	0.	0.	0.	79.	895.	21.	443.
1992	3.	1.	38.	4.	59.	63.	0.	0.	0.	0.	0.	0.	63.	958.	15.	458.
1993	3.	1.	40.	5.	57.	80.	0.	0.	0.	0.	0.	0.	80.	1037.	17.	475.
1994	2.	0.	42.	5.	56.	81.	0.	0.	0.	0.	0.	0.	81.	1118.	16.	491.
1995	4.	1.	45.	6.	55.	99.	0.	0.	0.	0.	0.	0.	99.	1217.	18.	509.
1996	5.	1.	49.	7.	55.	117.	0.	0.	0.	0.	0.	0.	117.	1334.	19.	528.
1997	4.	1.	52.	6.	56.	102.	0.	0.	0.	0.	0.	0.	102.	1436.	15.	543.
1998	4.	1.	55.	7.	54.	121.	0.	0.	0.	0.	0.	0.	121.	1556.	16.	559.
1999	4.	1.	58.	9.	49.	157.	0.	0.	0.	0.	0.	0.	157.	1714.	19.	579.
2000	4.	1.	61.	4.	57.	71.	0.	0.	0.	0.	0.	0.	71.	1785.	8.	587.
2001	0.	0.	61.	3.	58.	54.	0.	0.	0.	0.	0.	0.	54.	1839.	5.	592.
2002	0.	0.	61.	5.	56.	92.	0.	0.	0.	0.	0.	0.	92.	1930.	8.	601.
2003	0.	0.	61.	4.	57.	74.	0.	0.	0.	0.	0.	0.	74.	2005.	6.	607.
2004	0.	0.	61.	5.	56.	94.	0.	0.	0.	0.	0.	0.	94.	2099.	7.	614.
2005	0.	0.	61.	5.	56.	96.	0.	0.	0.	0.	0.	0.	96.	2195.	7.	621.
2006	0.	0.	61.	6.	55.	117.	0.	0.	0.	0.	0.	0.	117.	2312.	7.	628.
2007	0.	0.	61.	7.	54.	138.	0.	0.	0.	0.	0.	0.	138.	2450.	8.	635.
2008	0.	0.	61.	6.	55.	120.	0.	0.	0.	0.	0.	0.	120.	2570.	6.	642.
2009	0.	0.	61.	7.	54.	143.	0.	0.	0.	0.	0.	0.	143.	2713.	7.	649.
2010	0.	0.	61.	4.	52.	186.	0.	0.	0.	0.	0.	0.	186.	2899.	8.	657.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA
USER GROUP: PER-OTHER
AIRCRAFT TYPE: PISTON
REGION(S): ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	4.	2.	77.	7.	70.	49.	0.	0.	0.	0.	0.	0.	49.	49.	45.	45.
1979	3.	0.	80.	8.	72.	57.	0.	0.	0.	0.	0.	0.	57.	106.	47.	92.
1980	7.	2.	85.	11.	74.	80.	0.	0.	0.	0.	0.	0.	80.	186.	60.	151.
1981	9.	2.	92.	13.	79.	95.	0.	0.	0.	0.	0.	0.	95.	281.	65.	217.
1982	3.	0.	95.	10.	85.	75.	0.	0.	0.	0.	0.	0.	75.	355.	46.	263.
1983	5.	2.	98.	9.	89.	68.	0.	0.	0.	0.	0.	0.	68.	424.	38.	301.
1984	7.	3.	102.	12.	90.	92.	0.	0.	0.	0.	0.	0.	92.	516.	47.	349.
1985	5.	2.	105.	10.	95.	78.	0.	0.	0.	0.	0.	0.	78.	594.	36.	385.
1986	7.	2.	110.	13.	97.	103.	0.	0.	0.	0.	0.	0.	103.	697.	44.	429.
1987	7.	2.	115.	13.	02.	105.	0.	0.	0.	0.	0.	0.	105.	801.	40.	469.
1988	8.	1.	122.	16.	106.	131.	0.	0.	0.	0.	0.	0.	131.	932.	46.	515.
1989	7.	2.	127.	12.	115.	100.	0.	0.	0.	0.	0.	0.	100.	1032.	32.	547.
1990	11.	4.	134.	15.	119.	277.	0.	0.	0.	0.	0.	0.	277.	1309.	80.	627.
1991	10.	3.	141.	18.	123.	284.	0.	0.	0.	0.	0.	0.	284.	1593.	75.	702.
1992	10.	3.	148.	20.	128.	314.	0.	0.	0.	0.	0.	0.	314.	1907.	75.	777.
1993	12.	2.	158.	20.	138.	319.	0.	0.	0.	0.	0.	0.	319.	2226.	69.	846.
1994	10.	3.	165.	16.	149.	259.	0.	0.	0.	0.	0.	0.	259.	2485.	51.	897.
1995	14.	5.	174.	21.	153.	345.	0.	0.	0.	0.	0.	0.	345.	2830.	62.	960.
1996	12.	3.	183.	19.	164.	317.	0.	0.	0.	0.	0.	0.	317.	3148.	52.	1011.
1997	14.	5.	192.	22.	170.	373.	0.	0.	0.	0.	0.	0.	373.	3521.	55.	1067.
1998	15.	3.	204.	25.	179.	430.	0.	0.	0.	0.	0.	0.	430.	3951.	58.	1125.
1999	15.	5.	214.	38.	176.	664.	0.	0.	0.	0.	0.	0.	664.	4615.	82.	1207.
2000	15.	5.	224.	15.	209.	266.	0.	0.	0.	0.	0.	0.	266.	4882.	30.	1236.
2001	0.	0.	224.	10.	214.	180.	0.	0.	0.	0.	0.	0.	180.	5062.	18.	1255.
2002	0.	0.	224.	18.	206.	329.	0.	0.	0.	0.	0.	0.	329.	5392.	30.	1285.
2003	0.	0.	224.	20.	204.	372.	0.	0.	0.	0.	0.	0.	372.	5763.	31.	1316.
2004	0.	0.	224.	20.	204.	377.	0.	0.	0.	0.	0.	0.	377.	6141.	29.	1345.
2005	0.	0.	224.	16.	208.	307.	0.	0.	0.	0.	0.	0.	307.	6447.	21.	1366.
2006	0.	0.	224.	21.	203.	409.	0.	0.	0.	0.	0.	0.	409.	6856.	26.	1392.
2007	0.	0.	224.	19.	205.	375.	0.	0.	0.	0.	0.	0.	375.	7232.	22.	1414.
2008	0.	0.	224.	22.	202.	441.	0.	0.	0.	0.	0.	0.	441.	7673.	23.	1437.
2009	0.	0.	224.	25.	199.	509.	0.	0.	0.	0.	0.	0.	509.	8182.	24.	1461.
2010	0.	0.	224.	38.	186.	786.	0.	0.	0.	0.	0.	0.	786.	8969.	34.	1495.

SHORT USER OUTPUT

AVIONICS CATEGORY: HIGH COST GA
USER GROUP: AIR TAXI
AIRCRAFT TYPE: PISTON
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	214.	85.	3427.	303.	3124.	3256.	0.	326.	0.	3509.	0.	0.	1106.	1106.	1005.	1005.
1979	239.	96.	3600.	340.	3210.	4256.	0.	426.	0.	3679.	0.	0.	1917.	3023.	1584.	2590.
1980	302.	73.	3829.	479.	3550.	5307.	0.	531.	0.	3970.	0.	0.	2712.	5735.	2056.	4627.
1981	365.	76.	4118.	504.	3554.	6306.	0.	635.	0.	4383.	0.	0.	3432.	9167.	2344.	6971.
1982	258.	83.	4323.	500.	3823.	5712.	0.	571.	0.	4676.	0.	0.	2708.	11875.	1682.	8653.
1983	215.	85.	4454.	484.	4010.	5151.	0.	515.	0.	4867.	0.	0.	2105.	13980.	1188.	9841.
1984	269.	88.	4635.	509.	4126.	5996.	0.	600.	0.	5146.	0.	0.	2720.	16700.	1396.	11237.
1985	304.	95.	4844.	551.	4293.	6591.	0.	659.	0.	5623.	0.	0.	3008.	19708.	1403.	12640.
1986	351.	98.	5079.	590.	4489.	7160.	0.	717.	0.	6038.	0.	0.	3310.	23018.	1404.	14044.
1987	348.	101.	5326.	614.	4712.	7573.	0.	757.	0.	6362.	0.	0.	3507.	26525.	1352.	15396.
1988	737.	107.	5556.	1012.	4944.	12674.	0.	1267.	0.	7266.	0.	0.	7628.	34154.	2674.	18070.
1989	461.	119.	6298.	645.	5653.	8203.	0.	820.	0.	7622.	0.	0.	3419.	37573.	1089.	19159.
1990	503.	128.	6673.	765.	5908.	22504.	0.	2250.	0.	10101.	0.	0.	15001.	52574.	4345.	23505.
1991	531.	132.	7072.	875.	6194.	21083.	0.	2108.	0.	12256.	0.	0.	12602.	65175.	3318.	26823.
1992	562.	143.	7491.	983.	6508.	22360.	0.	2237.	0.	14510.	0.	0.	12584.	77759.	3013.	29835.
1993	590.	149.	7932.	941.	6991.	20979.	0.	2098.	0.	16483.	0.	0.	10309.	88069.	2244.	32079.
1994	633.	151.	8404.	916.	7488.	20254.	0.	2025.	0.	18295.	0.	0.	8716.	96785.	1724.	33803.
1995	659.	167.	8876.	991.	7895.	21918.	0.	2192.	0.	19615.	0.	0.	9527.	106311.	1713.	35517.
1996	655.	179.	9350.	1055.	8325.	23936.	0.	2394.	0.	21863.	0.	0.	10173.	116485.	1663.	37180.
1997	711.	188.	9903.	1115.	8790.	25641.	0.	2564.	0.	22311.	0.	0.	11475.	127960.	1706.	38886.
1998	763.	196.	10470.	1181.	9289.	27627.	0.	2763.	0.	23246.	0.	0.	12777.	140737.	1727.	40613.
1999	801.	210.	11061.	2248.	9813.	53400.	0.	5340.	0.	27679.	0.	0.	33666.	174403.	4136.	44748.
2000	801.	210.	11652.	801.	10351.	19321.	0.	1932.	0.	27442.	0.	0.	3119.	177522.	348.	45097.
2001	0.	0.	11652.	555.	11097.	13594.	0.	1359.	0.	26491.	0.	0.	-1541.	175981.	-156.	44940.
2002	0.	0.	11652.	878.	10774.	21837.	0.	2184.	0.	26479.	0.	0.	5884.	181864.	543.	45483.
2003	0.	0.	11652.	983.	10669.	24825.	0.	2483.	0.	26606.	0.	0.	8507.	190372.	714.	46197.
2004	0.	0.	11652.	941.	10711.	24131.	0.	2413.	0.	26391.	0.	0.	7995.	198367.	610.	46807.
2005	0.	0.	11652.	916.	10736.	23553.	0.	2355.	0.	25851.	0.	0.	8025.	206391.	556.	47363.
2006	0.	0.	11652.	901.	10671.	25934.	0.	2594.	0.	21929.	0.	0.	11943.	218334.	753.	48116.
2007	0.	0.	11652.	1055.	10597.	28327.	0.	2833.	0.	23215.	0.	0.	13422.	231756.	769.	48885.
2008	0.	0.	11652.	1113.	10539.	30345.	0.	3034.	0.	25606.	0.	0.	13994.	245750.	729.	49614.
2009	0.	0.	11652.	1181.	10471.	32695.	0.	3270.	0.	27159.	0.	0.	15303.	261054.	725.	50339.
2010	0.	0.	11652.	2248.	9404.	63196.	0.	6320.	0.	32641.	0.	0.	39903.	300956.	1718.	52057.

SHORT USER OUTPUT

AVIONICS CATEGORY: HIGH COST GA
USER GROUP: AIR TAXI
AIRCRAFT TYPE: PISTON
REGION(S): CONUS ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	0.	0.	6.	0.	6.	0.	0.	0.	0.	6.	0.	0.	-3.	-3.	-3.	-3.
1979	0.	0.	6.	1.	5.	11.	0.	1.	0.	6.	0.	0.	7.	4.	6.	3.
1980	1.	0.	7.	1.	6.	11.	0.	1.	0.	8.	0.	0.	6.	10.	5.	7.
1981	0.	0.	7.	1.	6.	11.	0.	1.	0.	9.	0.	0.	6.	16.	4.	12.
1982	1.	0.	8.	1.	7.	11.	0.	1.	0.	8.	0.	0.	6.	22.	4.	15.
1983	1.	1.	8.	1.	7.	12.	0.	1.	0.	10.	0.	0.	5.	27.	3.	18.
1984	0.	0.	8.	0.	8.	0.	0.	0.	0.	8.	0.	0.	-4.	23.	-2.	16.
1985	1.	0.	9.	2.	7.	24.	0.	2.	0.	11.	0.	0.	16.	39.	7.	24.
1986	0.	0.	9.	1.	8.	12.	0.	1.	0.	12.	0.	0.	5.	44.	2.	26.
1987	1.	0.	10.	1.	9.	12.	0.	1.	0.	12.	0.	0.	5.	49.	2.	28.
1988	1.	0.	11.	2.	9.	25.	0.	3.	0.	14.	0.	0.	15.	64.	5.	33.
1989	2.	1.	12.	2.	10.	25.	0.	3.	0.	16.	0.	0.	15.	79.	5.	38.
1990	1.	0.	13.	1.	12.	29.	0.	3.	0.	18.	0.	0.	17.	96.	5.	43.
1991	1.	0.	14.	2.	12.	48.	0.	5.	0.	25.	0.	0.	30.	126.	8.	50.
1992	2.	0.	16.	3.	13.	68.	0.	7.	0.	32.	0.	0.	45.	171.	11.	61.
1993	2.	1.	17.	2.	15.	45.	0.	4.	0.	36.	0.	0.	21.	192.	5.	66.
1994	1.	0.	18.	2.	16.	44.	0.	4.	0.	41.	0.	0.	19.	211.	4.	70.
1995	1.	0.	19.	1.	18.	22.	0.	2.	0.	40.	0.	0.	-1.	210.	-0.	69.
1996	2.	1.	20.	3.	17.	68.	0.	7.	0.	46.	0.	0.	37.	247.	6.	75.
1997	1.	0.	21.	2.	19.	46.	0.	5.	0.	49.	0.	0.	16.	263.	2.	78.
1998	2.	1.	22.	2.	20.	47.	0.	5.	0.	49.	0.	0.	17.	280.	2.	80.
1999	2.	0.	24.	6.	18.	143.	0.	14.	0.	59.	0.	0.	97.	377.	12.	92.
2000	2.	0.	26.	2.	24.	48.	0.	5.	0.	60.	0.	0.	12.	390.	1.	93.
2001	0.	0.	26.	1.	25.	24.	0.	2.	0.	57.	0.	0.	-8.	382.	-1.	93.
2002	0.	0.	26.	2.	24.	50.	0.	5.	0.	61.	0.	0.	13.	395.	1.	94.
2003	0.	0.	26.	3.	23.	76.	0.	8.	0.	62.	0.	0.	36.	431.	3.	97.
2004	0.	0.	26.	2.	24.	51.	0.	5.	0.	63.	0.	0.	14.	445.	1.	98.
2005	0.	0.	26.	2.	24.	52.	0.	5.	0.	63.	0.	0.	14.	459.	1.	99.
2006	0.	0.	26.	1.	25.	26.	0.	3.	0.	47.	0.	0.	-1.	458.	-0.	99.
2007	0.	0.	26.	3.	23.	81.	0.	8.	0.	51.	0.	0.	46.	504.	3.	102.
2008	0.	0.	26.	2.	24.	55.	0.	5.	0.	56.	0.	0.	20.	524.	1.	103.
2009	0.	0.	26.	2.	24.	55.	0.	6.	0.	57.	0.	0.	20.	544.	1.	104.
2010	0.	0.	26.	6.	20.	169.	0.	17.	0.	70.	0.	0.	115.	660.	5.	109.

SHORT USER OUTPUT

AVIONICS CATEGORY: HIGH COST GA
USER GROUP: AIR TAXI
AIRCRAFT TYPE: PISTON
REGION(S): CONUS CONUS OFF-SH

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	2.	0.	51.	8.	94.	121.	0.	12.	0.	145.	0.	0.	33.	33.	30.	30.
1979	5.	2.	54.	14.	98.	211.	0.	21.	0.	159.	0.	0.	107.	140.	88.	118.
1980	4.	0.	58.	14.	102.	210.	0.	21.	0.	169.	0.	0.	101.	241.	76.	194.
1981	8.	2.	64.	20.	108.	299.	0.	30.	0.	192.	0.	0.	169.	410.	116.	310.
1982	5.	1.	68.	18.	118.	269.	0.	27.	0.	205.	0.	0.	135.	546.	84.	394.
1983	5.	2.	71.	14.	128.	210.	0.	21.	0.	214.	0.	0.	78.	623.	44.	438.
1984	3.	0.	74.	15.	132.	241.	0.	24.	0.	223.	0.	0.	101.	724.	52.	490.
1985	7.	2.	79.	20.	138.	303.	0.	30.	0.	249.	0.	0.	143.	867.	67.	556.
1986	7.	2.	84.	22.	146.	335.	0.	33.	0.	267.	0.	0.	163.	1030.	69.	625.
1987	7.	1.	90.	22.	158.	337.	0.	34.	0.	285.	0.	0.	155.	1185.	60.	685.
1988	9.	2.	97.	26.	168.	400.	0.	40.	0.	299.	0.	0.	204.	1389.	72.	757.
1989	9.	3.	103.	28.	180.	310.	0.	31.	0.	305.	0.	0.	120.	1509.	38.	795.
1990	8.	1.	110.	14.	192.	412.	0.	41.	0.	334.	0.	0.	197.	1706.	57.	852.
1991	9.	3.	116.	15.	192.	312.	0.	31.	0.	344.	0.	0.	102.	1809.	27.	879.
1992	10.	2.	124.	18.	185.	410.	0.	41.	0.	359.	0.	0.	182.	1990.	44.	922.
1993	10.	2.	132.	17.	185.	379.	0.	38.	0.	366.	0.	0.	151.	2141.	33.	955.
1994	11.	3.	140.	15.	188.	332.	0.	33.	0.	365.	0.	0.	109.	2250.	22.	977.
1995	12.	3.	149.	17.	187.	380.	0.	38.	0.	362.	0.	0.	154.	2404.	28.	1004.
1996	12.	5.	158.	19.	184.	431.	0.	43.	0.	379.	0.	0.	191.	2594.	31.	1036.
1997	13.	5.	166.	21.	181.	484.	0.	48.	0.	390.	0.	0.	233.	2827.	35.	1070.
1998	13.	3.	176.	21.	180.	491.	0.	49.	0.	415.	0.	0.	226.	3054.	31.	1101.
1999	14.	4.	185.	35.	155.	784.	0.	78.	0.	469.	0.	0.	462.	3515.	57.	1158.
2000	14.	4.	198.	14.	184.	338.	0.	34.	0.	463.	0.	0.	63.	3579.	7.	1165.
2001	0.	0.	198.	10.	186.	245.	0.	24.	0.	450.	0.	0.	-14.	3565.	-1.	1163.
2002	0.	0.	198.	15.	185.	323.	0.	32.	0.	442.	0.	0.	61.	3626.	6.	1169.
2003	0.	0.	198.	18.	180.	455.	0.	45.	0.	446.	0.	0.	177.	3803.	15.	1184.
2004	0.	0.	198.	17.	181.	436.	0.	44.	0.	439.	0.	0.	164.	3967.	13.	1196.
2005	0.	0.	198.	15.	183.	391.	0.	39.	0.	424.	0.	0.	151.	4118.	9.	1206.
2006	0.	0.	198.	17.	181.	450.	0.	45.	0.	377.	0.	0.	209.	4307.	13.	1218.
2007	0.	0.	198.	19.	179.	510.	0.	51.	0.	401.	0.	0.	250.	4557.	14.	1233.
2008	0.	0.	198.	21.	177.	573.	0.	57.	0.	448.	0.	0.	282.	4840.	15.	1248.
2009	0.	0.	198.	21.	177.	581.	0.	58.	0.	485.	0.	0.	271.	5111.	13.	1260.
2010	0.	0.	198.	33.	165.	928.	0.	93.	0.	553.	0.	0.	548.	5658.	24.	1284.

SHORT USER OUTPUT

AVIONICS CATEGORY: HIGH COST GA
USER GROUP: AIR TAXI
AIRCRAFT TYPE: PISTON
REGION(S): ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	3.	1.	32.	3.	29.	32.	0.	3.	0.	32.	0.	0.	12.	12.	11.	11.
1979	1.	0.	33.	3.	30.	33.	0.	3.	0.	33.	0.	0.	12.	25.	10.	21.
1980	3.	1.	35.	5.	30.	55.	0.	6.	0.	36.	0.	0.	31.	56.	24.	45.
1981	4.	1.	38.	5.	33.	56.	0.	6.	0.	40.	0.	0.	30.	85.	20.	65.
1982	1.	0.	39.	4.	35.	46.	0.	5.	0.	42.	0.	0.	19.	104.	13.	77.
1983	2.	1.	40.	4.	36.	46.	0.	5.	0.	43.	0.	0.	19.	124.	11.	88.
1984	3.	1.	42.	5.	37.	59.	0.	6.	0.	47.	0.	0.	29.	153.	15.	103.
1985	2.	1.	43.	4.	39.	46.	0.	5.	0.	49.	0.	0.	18.	170.	8.	111.
1986	3.	1.	45.	5.	40.	61.	0.	6.	0.	53.	0.	0.	27.	197.	11.	122.
1987	3.	1.	47.	6.	41.	74.	0.	7.	0.	56.	0.	0.	38.	235.	15.	137.
1988	3.	0.	50.	6.	44.	75.	0.	8.	0.	58.	0.	0.	37.	272.	13.	150.
1989	3.	1.	52.	5.	47.	64.	0.	6.	0.	61.	0.	0.	26.	298.	8.	158.
1990	5.	2.	55.	6.	49.	177.	0.	18.	0.	80.	0.	0.	117.	415.	34.	192.
1991	4.	1.	58.	8.	50.	192.	0.	19.	0.	99.	0.	0.	122.	537.	32.	224.
1992	4.	1.	61.	8.	53.	182.	0.	18.	0.	118.	0.	0.	103.	639.	25.	249.
1993	5.	1.	65.	8.	57.	178.	0.	18.	0.	135.	0.	0.	91.	730.	20.	268.
1994	4.	1.	68.	7.	61.	155.	0.	15.	0.	146.	0.	0.	63.	793.	13.	281.
1995	6.	2.	72.	9.	63.	201.	0.	20.	0.	164.	0.	0.	96.	889.	17.	298.
1996	5.	1.	76.	8.	68.	182.	0.	18.	0.	181.	0.	0.	69.	958.	11.	309.
1997	6.	2.	80.	9.	71.	207.	0.	21.	0.	185.	0.	0.	90.	1049.	13.	323.
1998	6.	1.	85.	11.	74.	257.	0.	26.	0.	195.	0.	0.	130.	1179.	18.	340.
1999	6.	2.	89.	15.	74.	356.	0.	36.	0.	220.	0.	0.	207.	1385.	26.	366.
2000	6.	2.	93.	6.	87.	145.	0.	14.	0.	215.	0.	0.	19.	1404.	2.	368.
2001	0.	0.	93.	4.	89.	98.	0.	10.	0.	207.	0.	0.	-19.	1385.	-2.	366.
2002	0.	0.	93.	8.	85.	199.	0.	20.	0.	200.	0.	0.	72.	1457.	7.	372.
2003	0.	0.	93.	8.	85.	202.	0.	20.	0.	209.	0.	0.	73.	1530.	6.	379.
2004	0.	0.	93.	8.	85.	205.	0.	21.	0.	209.	0.	0.	76.	1606.	6.	384.
2005	0.	0.	93.	7.	86.	182.	0.	18.	0.	198.	0.	0.	61.	1667.	4.	389.
2006	0.	0.	93.	9.	84.	238.	0.	24.	0.	181.	0.	0.	120.	1786.	8.	396.
2007	0.	0.	93.	8.	85.	215.	0.	21.	0.	191.	0.	0.	94.	1880.	5.	402.
2008	0.	0.	93.	9.	84.	245.	0.	25.	0.	212.	0.	0.	110.	1991.	6.	407.
2009	0.	0.	93.	11.	82.	305.	0.	30.	0.	227.	0.	0.	156.	2147.	7.	415.
2010	0.	0.	93.	15.	78.	422.	0.	42.	0.	259.	0.	0.	245.	2391.	11.	425.

SHORT USER OUTPUT

AVIONICS CATEGORY: HIGH COST GA
USER GROUP: EXEC-AUS.
AIRCRAFT TYPE: PISTON
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	833.	183.	9692.	885.	8307.	9510.	0.	951.	0.	9939.	0.	0.	3391.	3391.	3083.	3083.
1979	729.	193.	10228.	1140.	9082.	12505.	0.	1250.	0.	10491.	0.	0.	5799.	9190.	4792.	7875.
1980	917.	203.	10942.	1420.	9522.	15734.	0.	1573.	0.	11423.	0.	0.	8220.	17410.	6176.	14051.
1981	1117.	219.	11840.	1674.	10100.	18836.	0.	1883.	0.	12722.	0.	0.	10336.	27745.	7059.	21110.
1982	872.	236.	12486.	1478.	11008.	16886.	0.	1689.	0.	13667.	0.	0.	8090.	35835.	5023.	26133.
1983	835.	248.	12923.	1310.	11005.	15290.	0.	1529.	0.	14308.	0.	0.	6321.	42156.	3565.	29701.
1984	809.	259.	13513.	1515.	11958.	17647.	0.	1765.	0.	15229.	0.	0.	8143.	50298.	4178.	33880.
1985	976.	271.	14212.	1865.	12589.	19492.	0.	1949.	0.	16712.	0.	0.	9213.	59511.	4298.	38177.
1986	1045.	285.	14977.	1765.	13212.	21438.	0.	2144.	0.	17989.	0.	0.	9940.	69451.	4216.	42393.
1987	1113.	297.	15793.	1852.	13941.	22842.	0.	2284.	0.	19004.	0.	0.	10676.	80127.	4116.	46509.
1988	2240.	316.	17717.	3001.	14710.	37586.	0.	3758.	0.	21663.	0.	0.	22551.	102678.	7904.	54413.
1989	1465.	351.	18791.	1954.	16832.	24913.	0.	2491.	0.	22829.	0.	0.	10550.	113228.	3362.	57775.
1990	1554.	377.	19982.	2323.	17645.	68536.	0.	6854.	0.	30407.	0.	0.	45690.	158919.	13235.	71009.
1991	1649.	398.	21219.	2671.	18548.	64138.	0.	6414.	0.	37020.	0.	0.	38473.	197392.	10131.	81141.
1992	1744.	422.	22541.	2996.	19543.	68167.	0.	6817.	0.	43917.	0.	0.	38513.	235905.	9220.	90360.
1993	1848.	445.	23939.	3370.	21063.	64117.	0.	6412.	0.	50014.	0.	0.	31698.	267603.	6898.	97259.
1994	1963.	478.	25424.	3803.	22821.	61979.	0.	6198.	0.	55605.	0.	0.	26866.	294470.	5315.	102574.
1995	1992.	509.	26914.	3005.	23909.	67141.	0.	6714.	0.	59827.	0.	0.	29316.	323786.	5273.	107847.
1996	2123.	535.	28502.	3251.	25251.	73758.	0.	7376.	0.	66805.	0.	0.	31643.	355430.	5174.	113021.
1997	2214.	569.	30147.	3410.	26737.	78559.	0.	7856.	0.	68265.	0.	0.	35205.	390635.	5233.	118254.
1998	2358.	599.	31934.	3634.	28295.	85126.	0.	8513.	0.	71264.	0.	0.	39556.	430193.	5345.	123600.
1999	2479.	638.	33745.	6821.	26474.	102028.	0.	10203.	0.	84673.	0.	0.	101795.	531988.	12505.	136105/
2000	2900.	685.	35659.	2484.	33157.	60278.	0.	6028.	0.	84124.	0.	0.	10505.	542493.	1173.	137278.
2001	0.	0.	35659.	1988.	33671.	41271.	0.	4127.	0.	81166.	0.	0.	-5063.	537430.	-514.	136764.
2002	0.	0.	35659.	2871.	32485.	66430.	0.	6643.	0.	81064.	0.	0.	17634.	555064.	1628.	138391.
2003	0.	0.	35659.	2998.	32660.	75665.	0.	7566.	0.	81337.	0.	0.	25802.	580865.	2165.	140559.
2004	0.	0.	35659.	2879.	32780.	73753.	0.	7375.	0.	80650.	0.	0.	24440.	605305.	1864.	142420.
2005	0.	0.	35659.	2803.	32853.	72990.	0.	7299.	0.	78916.	0.	0.	24655.	629960.	1710.	144130.
2006	0.	0.	35659.	3005.	32651.	74958.	0.	7496.	0.	67120.	0.	0.	35009.	664969.	2308.	146438.
2007	0.	0.	35659.	3251.	32405.	87289.	0.	8729.	0.	70979.	0.	0.	41851.	706820.	2387.	148825.
2008	0.	0.	35659.	3410.	32248.	92970.	0.	9297.	0.	78365.	0.	0.	42924.	751144.	2236.	151061.
2009	0.	0.	35659.	3634.	32017.	100745.	0.	10074.	0.	83267.	0.	0.	47372.	798515.	2244.	153305.
2010	0.	0.	35659.	6821.	28835.	191752.	0.	19175.	0.	99851.	0.	0.	120654.	919169.	5195.	158500.

SHORT USER OUTPUT

AVIONICS CATEGORY: HIGH COST GA
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: HELICOPTER
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	6.	2.	79.	8.	71.	86.	0.	9.	0.	82.	0.	0.	35.	35.	31.	31.
1979	3.	2.	80.	5.	75.	55.	0.	5.	0.	80.	0.	0.	7.	42.	6.	38.
1980	4.	1.	83.	9.	74.	100.	0.	10.	0.	83.	0.	0.	47.	88.	35.	72.
1981	7.	2.	88.	12.	76.	135.	0.	14.	0.	91.	0.	0.	74.	163.	51.	123.
1982	5.	2.	92.	10.	82.	114.	0.	11.	0.	95.	0.	0.	53.	216.	33.	156.
1983	3.	2.	93.	8.	85.	93.	0.	9.	0.	97.	0.	0.	33.	249.	19.	175.
1984	4.	2.	95.	10.	85.	118.	0.	12.	0.	100.	0.	0.	54.	303.	28.	203.
1985	5.	1.	99.	12.	87.	144.	0.	14.	0.	108.	0.	0.	73.	376.	34.	237.
1986	3.	2.	100.	9.	91.	109.	0.	11.	0.	116.	0.	0.	38.	414.	16.	253.
1987	6.	2.	104.	12.	92.	148.	0.	15.	0.	123.	0.	0.	69.	483.	27.	280.
1988	0.	4.	100.	5.	95.	63.	0.	6.	0.	113.	0.	0.	-2.	481.	-1.	279.
1989	7.	2.	105.	13.	92.	165.	0.	17.	0.	120.	0.	0.	86.	568.	28.	306.
1990	6.	2.	109.	9.	100.	265.	0.	26.	0.	144.	0.	0.	163.	731.	47.	354.
1991	7.	2.	114.	14.	100.	336.	0.	34.	0.	176.	0.	0.	211.	942.	56.	409.
1992	9.	3.	120.	18.	102.	410.	0.	41.	0.	214.	0.	0.	257.	1199.	62.	471.
1993	7.	2.	125.	15.	110.	334.	0.	33.	0.	246.	0.	0.	173.	1373.	38.	508.
1994	10.	3.	132.	15.	117.	332.	0.	33.	0.	272.	0.	0.	157.	1530.	31.	540.
1995	7.	2.	137.	15.	122.	335.	0.	34.	0.	311.	0.	0.	140.	1669.	25.	565.
1996	10.	3.	144.	19.	125.	431.	0.	43.	0.	349.	0.	0.	206.	1876.	34.	598.
1997	8.	3.	149.	14.	135.	323.	0.	32.	0.	357.	0.	0.	105.	1980.	16.	614.
1998	12.	3.	158.	21.	137.	491.	0.	49.	0.	379.	0.	0.	245.	2225.	33.	647.
1999	10.	3.	165.	25.	140.	594.	0.	59.	0.	406.	0.	0.	324.	2549.	40.	687.
2000	10.	3.	172.	10.	162.	241.	0.	24.	0.	392.	0.	0.	13.	2562.	1.	688.
2001	0.	0.	172.	6.	166.	147.	0.	15.	0.	366.	0.	0.	-58.	2504.	-6.	682.
2002	0.	0.	172.	14.	158.	348.	0.	35.	0.	368.	0.	0.	122.	2626.	11.	694.
2003	0.	0.	172.	18.	154.	455.	0.	45.	0.	371.	0.	0.	216.	2842.	18.	712.
2004	0.	0.	172.	15.	157.	385.	0.	38.	0.	380.	0.	0.	149.	2991.	11.	723.
2005	0.	0.	172.	15.	157.	391.	0.	39.	0.	366.	0.	0.	161.	3152.	11.	734.
2006	0.	0.	172.	15.	157.	397.	0.	40.	0.	338.	0.	0.	181.	3333.	11.	746.
2007	0.	0.	172.	19.	153.	510.	0.	51.	0.	376.	0.	0.	264.	3597.	15.	761.
2008	0.	0.	172.	14.	158.	382.	0.	38.	0.	410.	0.	0.	131.	3728.	7.	768.
2009	0.	0.	172.	21.	151.	581.	0.	58.	0.	443.	0.	0.	293.	4021.	14.	782.
2010	0.	0.	172.	25.	147.	703.	0.	70.	0.	478.	0.	0.	384.	4404.	17.	798.

SHORT USER OUTPUT

AVIONICS CATEGORY: HIGH COST GA
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: PISTON
REGION(S): CONUS ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	1.	0.	15.	2.	13.	21.	0.	2.	0.	16.	0.	0.	11.	11.	10.	10.
1979	2.	0.	17.	3.	14.	33.	0.	3.	0.	19.	0.	0.	19.	30.	16.	26.
1980	1.	0.	18.	2.	16.	22.	0.	2.	0.	20.	0.	0.	10.	40.	7.	33.
1981	3.	1.	20.	5.	17.	34.	0.	3.	0.	23.	0.	0.	18.	58.	13.	46.
1982	1.	0.	21.	2.	19.	23.	0.	2.	0.	24.	0.	0.	8.	67.	5.	51.
1983	2.	0.	23.	5.	20.	35.	0.	3.	0.	27.	0.	0.	17.	84.	10.	61.
1984	3.	0.	26.	5.	21.	59.	0.	6.	0.	32.	0.	0.	36.	120.	19.	79.
1985	4.	1.	29.	4.	25.	48.	0.	5.	0.	36.	0.	0.	24.	144.	11.	90.
1986	1.	0.	30.	3.	27.	36.	0.	4.	0.	37.	0.	0.	14.	158.	6.	96.
1987	4.	1.	33.	4.	29.	49.	0.	5.	0.	41.	0.	0.	23.	181.	9.	105.
1988	6.	1.	38.	7.	31.	88.	0.	9.	0.	48.	0.	0.	54.	235.	19.	124.
1989	3.	0.	41.	5.	36.	64.	0.	6.	0.	54.	0.	0.	29.	264.	9.	133.
1990	4.	1.	44.	6.	38.	177.	0.	18.	0.	74.	0.	0.	120.	384.	35.	168.
1991	3.	0.	47.	5.	42.	120.	0.	12.	0.	83.	0.	0.	65.	449.	17.	185.
1992	7.	2.	52.	8.	44.	182.	0.	18.	0.	102.	0.	0.	111.	560.	26.	212.
1993	4.	0.	56.	6.	50.	134.	0.	13.	0.	116.	0.	0.	60.	620.	13.	225.
1994	6.	1.	61.	9.	53.	177.	0.	18.	0.	134.	0.	0.	89.	709.	18.	243.
1995	6.	1.	66.	10.	56.	223.	0.	22.	0.	154.	0.	0.	121.	830.	22.	264.
1996	8.	2.	70.	8.	62.	182.	0.	18.	0.	171.	0.	0.	75.	905.	12.	277.
1997	5.	0.	75.	8.	67.	184.	0.	18.	0.	172.	0.	0.	77.	982.	11.	288.
1998	8.	1.	82.	11.	71.	257.	0.	26.	0.	191.	0.	0.	132.	1114.	18.	306.
1999	7.	2.	87.	17.	70.	404.	0.	40.	0.	223.	0.	0.	247.	1361.	30.	336.
2000	7.	2.	92.	7.	85.	164.	0.	17.	0.	228.	0.	0.	33.	1395.	4.	340.
2001	0.	0.	92.	4.	88.	98.	0.	10.	0.	217.	0.	0.	-25.	1370.	-2.	337.
2002	0.	0.	92.	5.	87.	124.	0.	12.	0.	203.	0.	0.	7.	1377.	1.	338.
2003	0.	0.	92.	8.	84.	202.	0.	20.	0.	206.	0.	0.	75.	1452.	6.	344.
2004	0.	0.	92.	0.	80.	154.	0.	15.	0.	201.	0.	0.	34.	1485.	3.	347.
2005	0.	0.	92.	8.	84.	208.	0.	21.	0.	194.	0.	0.	87.	1572.	6.	353.
2006	0.	0.	92.	10.	82.	264.	0.	26.	0.	174.	0.	0.	147.	1719.	9.	362.
2007	0.	0.	92.	8.	84.	215.	0.	21.	0.	181.	0.	0.	99.	1819.	6.	368.
2008	0.	0.	92.	8.	84.	218.	0.	22.	0.	198.	0.	0.	93.	1912.	5.	373.
2009	0.	0.	92.	11.	81.	305.	0.	30.	0.	224.	0.	0.	158.	2070.	7.	380.
2010	0.	0.	92.	17.	75.	478.	0.	48.	0.	263.	0.	0.	293.	2363.	13.	393.

SHORT USER OUTPUT

AVIONICS CATEGORY: HIGH COST GA
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: PISTON
REGION(S): CONUS CONUS OFF-SH

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	8.	1.	78.	14.	142.	211.	0.	21.	0.	228.	0.	0.	71.	71.	65.	65.
1979	8.	2.	84.	20.	148.	301.	0.	30.	0.	243.	0.	0.	144.	216.	119.	184.
1980	8.	1.	91.	20.	156.	390.	0.	39.	0.	267.	0.	0.	212.	428.	159.	343.
1981	13.	3.	101.	34.	168.	508.	0.	51.	0.	307.	0.	0.	298.	726.	204.	547.
1982	7.	1.	107.	24.	190.	359.	0.	36.	0.	325.	0.	0.	154.	880.	96.	643.
1983	9.	3.	113.	26.	200.	390.	0.	39.	0.	347.	0.	0.	171.	1050.	96.	739.
1984	7.	1.	119.	29.	210.	422.	0.	42.	0.	369.	0.	0.	188.	1238.	96.	835.
1985	12.	3.	128.	34.	222.	515.	0.	51.	0.	412.	0.	0.	249.	1487.	116.	951.
1986	12.	3.	137.	34.	240.	517.	0.	52.	0.	443.	0.	0.	235.	1722.	100.	1051.
1987	12.	2.	147.	30.	258.	551.	0.	55.	0.	466.	0.	0.	254.	1976.	98.	1149.
1988	17.	4.	160.	44.	276.	677.	0.	68.	0.	490.	0.	0.	354.	2330.	124.	1273.
1989	14.	3.	171.	36.	306.	557.	0.	56.	0.	518.	0.	0.	232.	2563.	74.	1347.
1990	16.	3.	184.	23.	322.	677.	0.	68.	0.	559.	0.	0.	318.	2881.	92.	1439.
1991	16.	4.	196.	25.	319.	600.	0.	60.	0.	585.	0.	0.	236.	3117.	62.	1501.
1992	18.	4.	210.	31.	310.	705.	0.	71.	0.	612.	0.	0.	316.	3433.	76.	1577.
1993	16.	3.	223.	25.	317.	557.	0.	56.	0.	618.	0.	0.	180.	3614.	39.	1616.
1994	21.	5.	239.	29.	316.	641.	0.	64.	0.	631.	0.	0.	249.	3863.	49.	1666.
1995	20.	5.	254.	29.	317.	648.	0.	65.	0.	627.	0.	0.	257.	4120.	46.	1712.
1996	21.	5.	270.	33.	312.	749.	0.	75.	0.	654.	0.	0.	334.	4454.	55.	1767.
1997	23.	6.	287.	34.	311.	783.	0.	78.	0.	669.	0.	0.	357.	4811.	53.	1820.
1998	23.	5.	305.	36.	309.	842.	0.	84.	0.	704.	0.	0.	392.	5203.	53.	1873.
1999	26.	7.	324.	59.	265.	1401.	0.	140.	0.	803.	0.	0.	844.	6046.	104.	1976.
2000	26.	7.	343.	20.	317.	627.	0.	63.	0.	813.	0.	0.	142.	6188.	16.	1992.
2001	0.	0.	343.	10.	327.	392.	0.	39.	0.	778.	0.	0.	-52.	6136.	-5.	1987.
2002	0.	0.	343.	25.	318.	622.	0.	62.	0.	774.	0.	0.	157.	6294.	15.	2001.
2003	0.	0.	343.	31.	312.	783.	0.	78.	0.	779.	0.	0.	300.	6593.	25.	2027.
2004	0.	0.	343.	25.	318.	641.	0.	64.	0.	758.	0.	0.	183.	6776.	14.	2040.
2005	0.	0.	343.	29.	314.	755.	0.	76.	0.	746.	0.	0.	292.	7068.	20.	2061.
2006	0.	0.	343.	29.	314.	767.	0.	77.	0.	655.	0.	0.	349.	7417.	22.	2083.
2007	0.	0.	343.	33.	310.	886.	0.	89.	0.	692.	0.	0.	437.	7855.	25.	2108.
2008	0.	0.	343.	34.	309.	927.	0.	93.	0.	769.	0.	0.	435.	8289.	23.	2130.
2009	0.	0.	343.	36.	307.	997.	0.	100.	0.	822.	0.	0.	469.	8759.	22.	2153.
2010	0.	0.	343.	59.	284.	1659.	0.	166.	0.	947.	0.	0.	1000.	9759.	43.	2196.

SHORT USER OUTPUT

AVIONICS CATEGORY: HIGH COST GA
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: HELICOPTER
REGION(S): CONUS ALASKA CONUS OFF-SHAKA OFF-SH

YEAR	NEW AC	RET AC	NET POP	PCHGS PURCH	PCHGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	2.	1.	16.	4.	28.	60.	0.	6.	0.	50.	0.	0.	28.	28.	26.	26.
1979	0.	0.	16.	2.	30.	30.	0.	3.	0.	46.	0.	0.	3.	31.	3.	28.
1980	1.	0.	17.	4.	30.	60.	0.	6.	0.	51.	0.	0.	28.	59.	21.	49.
1981	2.	1.	18.	4.	32.	60.	0.	6.	0.	51.	0.	0.	27.	86.	19.	68.
1982	1.	0.	19.	4.	34.	60.	0.	6.	0.	51.	0.	0.	27.	113.	17.	85.
1983	1.	0.	20.	6.	34.	90.	0.	9.	0.	60.	0.	0.	50.	163.	28.	113.
1984	2.	1.	21.	4.	38.	60.	0.	6.	0.	60.	0.	0.	23.	186.	12.	124.
1985	1.	0.	22.	6.	38.	91.	0.	9.	0.	64.	0.	0.	48.	235.	23.	147.
1986	1.	1.	22.	4.	40.	61.	0.	6.	0.	69.	0.	0.	19.	254.	8.	155.
1987	1.	0.	23.	4.	42.	61.	0.	6.	0.	69.	0.	0.	19.	273.	7.	162.
1988	1.	0.	24.	6.	42.	92.	0.	9.	0.	74.	0.	0.	45.	318.	16.	178.
1989	2.	1.	25.	6.	44.	93.	0.	9.	0.	78.	0.	0.	43.	360.	14.	192.
1990	2.	0.	27.	3.	48.	88.	0.	9.	0.	78.	0.	0.	39.	399.	11.	203.
1991	2.	1.	28.	3.	47.	72.	0.	7.	0.	80.	0.	0.	23.	423.	6.	209.
1992	2.	0.	30.	4.	46.	91.	0.	9.	0.	80.	0.	0.	40.	463.	10.	219.
1993	3.	1.	32.	4.	46.	89.	0.	9.	0.	84.	0.	0.	37.	500.	8.	227.
1994	3.	1.	34.	5.	44.	111.	0.	11.	0.	91.	0.	0.	52.	552.	10.	237.
1995	2.	0.	36.	4.	45.	89.	0.	9.	0.	90.	0.	0.	33.	585.	6.	243.
1996	3.	1.	38.	5.	43.	115.	0.	11.	0.	93.	0.	0.	54.	639.	9.	252.
1997	3.	1.	40.	4.	44.	92.	0.	9.	0.	94.	0.	0.	34.	673.	5.	257.
1998	3.	1.	42.	4.	44.	92.	0.	9.	0.	97.	0.	0.	34.	707.	5.	262.
1999	4.	1.	45.	9.	36.	214.	0.	21.	0.	115.	0.	0.	133.	840.	16.	278.
2000	4.	1.	48.	4.	44.	96.	0.	10.	0.	116.	0.	0.	27.	866.	3.	281.
2001	0.	0.	48.	2.	46.	49.	0.	5.	0.	107.	0.	0.	-11.	855.	-1.	280.
2002	0.	0.	48.	3.	45.	75.	0.	7.	0.	105.	0.	0.	13.	867.	1.	281.
2003	0.	0.	48.	4.	44.	101.	0.	10.	0.	103.	0.	0.	37.	905.	3.	284.
2004	0.	0.	48.	4.	44.	103.	0.	10.	0.	104.	0.	0.	38.	943.	3.	287.
2005	0.	0.	48.	5.	43.	130.	0.	13.	0.	110.	0.	0.	60.	1003.	4.	291.
2006	0.	0.	48.	4.	44.	106.	0.	11.	0.	94.	0.	0.	46.	1049.	3.	294.
2007	0.	0.	48.	5.	43.	134.	0.	13.	0.	100.	0.	0.	69.	1118.	4.	298.
2008	0.	0.	48.	4.	44.	109.	0.	11.	0.	108.	0.	0.	42.	1160.	2.	300.
2009	0.	0.	48.	4.	44.	111.	0.	11.	0.	113.	0.	0.	41.	1201.	2.	302.
2010	0.	0.	48.	9.	39.	253.	0.	25.	0.	135.	0.	0.	157.	1358.	7.	309.

SHORT USER OUTPUT

AVIONICS CATEGORY: HIGH COST GA
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: PISTON
REGION(S): ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	7.	2.	93.	9.	84.	97.	0.	10.	0.	96.	0.	0.	37.	37.	34.	34.
1979	10.	2.	101.	14.	87.	153.	0.	15.	0.	106.	0.	0.	82.	120.	68.	102.
1980	12.	2.	111.	17.	94.	188.	0.	19.	0.	120.	0.	0.	107.	227.	80.	182.
1981	14.	2.	123.	19.	104.	214.	0.	21.	0.	138.	0.	0.	121.	347.	82.	265.
1982	12.	3.	132.	17.	115.	194.	0.	19.	0.	151.	0.	0.	96.	444.	60.	325.
1983	10.	2.	140.	16.	124.	186.	0.	19.	0.	162.	0.	0.	83.	526.	47.	371.
1984	11.	2.	149.	18.	131.	212.	0.	21.	0.	178.	0.	0.	98.	625.	51.	422.
1985	16.	4.	161.	21.	140.	251.	0.	25.	0.	200.	0.	0.	122.	747.	57.	479.
1986	13.	2.	172.	21.	151.	255.	0.	26.	0.	214.	0.	0.	118.	865.	50.	529.
1987	17.	3.	186.	24.	162.	296.	0.	30.	0.	230.	0.	0.	147.	1012.	57.	586.
1988	30.	4.	212.	36.	176.	451.	0.	45.	0.	264.	0.	0.	269.	1281.	94.	680.
1989	20.	3.	224.	26.	203.	331.	0.	33.	0.	283.	0.	0.	150.	1431.	48.	728.
1990	23.	5.	247.	32.	215.	941.	0.	94.	0.	391.	0.	0.	644.	2075.	187.	914.
1991	25.	6.	266.	36.	230.	864.	0.	86.	0.	484.	0.	0.	526.	2601.	139.	1053.
1992	26.	4.	288.	41.	247.	933.	0.	93.	0.	582.	0.	0.	537.	3138.	129.	1181.
1993	26.	6.	308.	37.	271.	825.	0.	82.	0.	663.	0.	0.	398.	3536.	87.	1268.
1994	31.	6.	333.	41.	292.	907.	0.	91.	0.	750.	0.	0.	426.	3962.	84.	1352.
1995	31.	7.	357.	42.	315.	938.	0.	94.	0.	820.	0.	0.	418.	4380.	75.	1427.
1996	33.	6.	384.	48.	336.	1089.	0.	109.	0.	928.	0.	0.	497.	4878.	81.	1509.
1997	36.	9.	411.	48.	363.	1106.	0.	111.	0.	952.	0.	0.	500.	5378.	74.	1583.
1998	38.	8.	441.	54.	387.	1263.	0.	126.	0.	1009.	0.	0.	612.	5990.	83.	1666.
1999	41.	8.	474.	95.	379.	2257.	0.	226.	0.	1198.	0.	0.	1408.	7398.	173.	1839.
2000	41.	8.	507.	41.	466.	989.	0.	99.	0.	1221.	0.	0.	255.	7653.	28.	1867.
2001	0.	0.	507.	24.	483.	588.	0.	59.	0.	1176.	0.	0.	-82.	7571.	-8.	1859.
2002	0.	0.	507.	36.	471.	895.	0.	90.	0.	1170.	0.	0.	198.	7769.	18.	1877.
2003	0.	0.	507.	41.	466.	1035.	0.	104.	0.	1162.	0.	0.	328.	8096.	27.	1905.
2004	0.	0.	507.	37.	470.	949.	0.	95.	0.	1139.	0.	0.	261.	8358.	20.	1925.
2005	0.	0.	507.	41.	466.	1068.	0.	107.	0.	1112.	0.	0.	383.	8741.	27.	1951.
2006	0.	0.	507.	42.	465.	1111.	0.	111.	0.	948.	0.	0.	507.	9247.	32.	1983.
2007	0.	0.	507.	48.	459.	1289.	0.	129.	0.	991.	0.	0.	645.	9892.	37.	2020.
2008	0.	0.	507.	46.	459.	1309.	0.	131.	0.	1094.	0.	0.	609.	10501.	32.	2052.
2009	0.	0.	507.	54.	453.	1495.	0.	149.	0.	1179.	0.	0.	732.	11234.	35.	2086.
2010	0.	0.	507.	95.	412.	2671.	0.	267.	0.	1413.	0.	0.	1669.	12902.	72.	2158.

SHORT USER OUTPUT

AVIONICS CATEGORY: HIGH COST GA
USER GROUP: PER-OTHER
AIRCRAFT TYPE: PISTON
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	74.	21.	1073.	101.	972.	1085.	0.	0.	0.	0.	0.	0.	1085.	1085.	987.	987.
1979	93.	21.	1145.	139.	1006.	1517.	0.	0.	0.	0.	0.	0.	1517.	2602.	1253.	2240.
1980	118.	22.	1241.	179.	1067.	1928.	0.	0.	0.	0.	0.	0.	1928.	4530.	1448.	3689.
1981	148.	28.	1361.	206.	1155.	2318.	0.	0.	0.	0.	0.	0.	2318.	6848.	1583.	5272.
1982	118.	25.	1454.	185.	1269.	2114.	0.	0.	0.	0.	0.	0.	2114.	8961.	1312.	6584.
1983	97.	30.	1521.	164.	1357.	1903.	0.	0.	0.	0.	0.	0.	1903.	10864.	1074.	7658.
1984	114.	27.	1608.	184.	1419.	2226.	0.	0.	0.	0.	0.	0.	2226.	13090.	1142.	8800.
1985	139.	33.	1714.	212.	1502.	2536.	0.	0.	0.	0.	0.	0.	2536.	15626.	1183.	9983.
1986	145.	33.	1827.	224.	1603.	2721.	0.	0.	0.	0.	0.	0.	2721.	18347.	1154.	11137.
1987	161.	35.	1953.	240.	1713.	2960.	0.	0.	0.	0.	0.	0.	2960.	21307.	1141.	12279.
1988	269.	42.	2180.	345.	1834.	4333.	0.	0.	0.	0.	0.	0.	4333.	25640.	1519.	13797.
1989	191.	42.	2329.	250.	2079.	3179.	0.	0.	0.	0.	0.	0.	3179.	28819.	1013.	14810.
1990	207.	49.	2487.	297.	2190.	8737.	0.	0.	0.	0.	0.	0.	8737.	37556.	2531.	17341.
1991	219.	49.	2657.	344.	2313.	8260.	0.	0.	0.	0.	0.	0.	8260.	45817.	2175.	19516.
1992	233.	51.	2839.	388.	2451.	8828.	0.	0.	0.	0.	0.	0.	8828.	54645.	2113.	21630.
1993	244.	56.	3027.	373.	2654.	8316.	0.	0.	0.	0.	0.	0.	8316.	62960.	1810.	23439.
1994	257.	61.	3233.	370.	2853.	8181.	0.	0.	0.	0.	0.	0.	8181.	71142.	1619.	25058.
1995	256.	65.	3438.	390.	3044.	8714.	0.	0.	0.	0.	0.	0.	8714.	79855.	1567.	26625.
1996	252.	67.	3649.	427.	3222.	9688.	0.	0.	0.	0.	0.	0.	9688.	89543.	1584.	28209.
1997	302.	74.	3877.	452.	3425.	10413.	0.	0.	0.	0.	0.	0.	10413.	99956.	1548.	29757.
1998	317.	74.	4120.	483.	3637.	11299.	0.	0.	0.	0.	0.	0.	11299.	111255.	1527.	31284.
1999	339.	85.	4374.	850.	3524.	20191.	0.	0.	0.	0.	0.	0.	20191.	131446.	2480.	33764.
2000	359.	85.	4628.	339.	4249.	8177.	0.	0.	0.	0.	0.	0.	8177.	139623.	913.	34679.
2001	0.	0.	4628.	212.	4416.	5193.	0.	0.	0.	0.	0.	0.	5193.	144816.	527.	35205.
2002	0.	0.	4628.	344.	4284.	8556.	0.	0.	0.	0.	0.	0.	8556.	153371.	790.	35994.
2003	0.	0.	4628.	388.	4240.	9799.	0.	0.	0.	0.	0.	0.	9799.	163170.	822.	36817.
2004	0.	0.	4628.	373.	4255.	9565.	0.	0.	0.	0.	0.	0.	9565.	172735.	730.	37546.
2005	0.	0.	4628.	370.	4259.	9635.	0.	0.	0.	0.	0.	0.	9635.	182370.	666.	38214.
2006	0.	0.	4628.	390.	4238.	10312.	0.	0.	0.	0.	0.	0.	10312.	192682.	650.	38864.
2007	0.	0.	4628.	427.	4201.	11465.	0.	0.	0.	0.	0.	0.	11465.	204147.	657.	39521.
2008	0.	0.	4628.	452.	4176.	12323.	0.	0.	0.	0.	0.	0.	12323.	216471.	642.	40163.
2009	0.	0.	4628.	483.	4145.	13372.	0.	0.	0.	0.	0.	0.	13372.	229842.	633.	40797.
2010	0.	0.	4628.	850.	3778.	23895.	0.	0.	0.	0.	0.	0.	23895.	253737.	1029.	41826.

SHORT USER OUTPUT

AVIONICS CATEGORY: HIGH COST GA
USER GROUP: PER-OTHER
AIRCRAFT TYPE: PISTON
REGION(S): CONUS CONUS OFF-SH

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	2.	1.	31.	4.	58.	60.	0.	0.	0.	0.	0.	0.	60.	60.	55.	55.
1979	2.	0.	33.	8.	58.	120.	0.	0.	0.	0.	0.	0.	120.	181.	99.	154.
1980	3.	1.	35.	10.	60.	150.	0.	0.	0.	0.	0.	0.	150.	331.	113.	267.
1981	3.	1.	37.	8.	66.	120.	0.	0.	0.	0.	0.	0.	120.	450.	82.	349.
1982	2.	0.	39.	10.	68.	149.	0.	0.	0.	0.	0.	0.	149.	600.	93.	441.
1983	2.	1.	40.	8.	72.	120.	0.	0.	0.	0.	0.	0.	120.	720.	68.	509.
1984	3.	1.	42.	10.	74.	151.	0.	0.	0.	0.	0.	0.	151.	870.	77.	586.
1985	2.	1.	43.	8.	78.	121.	0.	0.	0.	0.	0.	0.	121.	991.	57.	643.
1986	3.	1.	45.	10.	80.	152.	0.	0.	0.	0.	0.	0.	152.	1144.	65.	708.
1987	2.	0.	47.	12.	82.	184.	0.	0.	0.	0.	0.	0.	184.	1327.	71.	778.
1988	5.	1.	54.	20.	88.	308.	0.	0.	0.	0.	0.	0.	308.	1635.	108.	886.
1989	4.	1.	57.	10.	104.	155.	0.	0.	0.	0.	0.	0.	155.	1790.	49.	936.
1990	5.	2.	60.	7.	106.	206.	0.	0.	0.	0.	0.	0.	206.	1996.	60.	995.
1991	5.	1.	64.	9.	103.	216.	0.	0.	0.	0.	0.	0.	216.	2212.	57.	1052.
1992	4.	1.	67.	7.	104.	159.	0.	0.	0.	0.	0.	0.	159.	2371.	38.	1090.
1993	5.	1.	71.	9.	101.	201.	0.	0.	0.	0.	0.	0.	201.	2572.	44.	1134.
1994	6.	2.	75.	8.	102.	177.	0.	0.	0.	0.	0.	0.	177.	2749.	35.	1169.
1995	8.	1.	80.	10.	100.	223.	0.	0.	0.	0.	0.	0.	223.	2972.	40.	1209.
1996	6.	2.	84.	8.	102.	182.	0.	0.	0.	0.	0.	0.	182.	3154.	30.	1239.
1997	7.	2.	89.	10.	100.	230.	0.	0.	0.	0.	0.	0.	230.	3384.	34.	1273.
1998	6.	1.	94.	11.	98.	257.	0.	0.	0.	0.	0.	0.	257.	3641.	35.	1308.
1999	7.	2.	99.	20.	79.	475.	0.	0.	0.	0.	0.	0.	475.	4116.	58.	1366.
2000	7.	2.	104.	7.	97.	169.	0.	0.	0.	0.	0.	0.	169.	4285.	19.	1385.
2001	0.	0.	104.	5.	94.	122.	0.	0.	0.	0.	0.	0.	122.	4408.	12.	1397.
2002	0.	0.	104.	9.	95.	224.	0.	0.	0.	0.	0.	0.	224.	4632.	21.	1418.
2003	0.	0.	104.	7.	97.	177.	0.	0.	0.	0.	0.	0.	177.	4808.	15.	1433.
2004	0.	0.	104.	9.	95.	231.	0.	0.	0.	0.	0.	0.	231.	5039.	18.	1450.
2005	0.	0.	104.	8.	96.	208.	0.	0.	0.	0.	0.	0.	208.	5247.	14.	1465.
2006	0.	0.	104.	10.	94.	264.	0.	0.	0.	0.	0.	0.	264.	5512.	17.	1482.
2007	0.	0.	104.	8.	96.	215.	0.	0.	0.	0.	0.	0.	215.	5727.	12.	1494.
2008	0.	0.	104.	10.	94.	273.	0.	0.	0.	0.	0.	0.	273.	5999.	14.	1508.
2009	0.	0.	104.	11.	93.	305.	0.	0.	0.	0.	0.	0.	305.	6304.	14.	1523.
2010	0.	0.	104.	20.	84.	562.	0.	0.	0.	0.	0.	0.	562.	6866.	24.	1547.

SHORT USER OUTPUT

AVIONICS CATEGORY: HIGH COST GA
USER GROUP: PER-OTHER
AIRCRAFT TYPE: PISTON
REGION(S): ALASKA

YEAR	NEW AC	RET AC	NET PUP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	3.	1.	34.	4.	30.	43.	0.	0.	0.	0.	0.	0.	43.	43.	39.	39.
1979	4.	0.	38.	6.	32.	65.	0.	0.	0.	0.	0.	0.	65.	108.	54.	93.
1980	6.	1.	43.	7.	36.	78.	0.	0.	0.	0.	0.	0.	78.	186.	58.	151.
1981	7.	1.	49.	9.	40.	101.	0.	0.	0.	0.	0.	0.	101.	287.	69.	221.
1982	9.	1.	56.	8.	46.	91.	0.	0.	0.	0.	0.	0.	91.	379.	57.	277.
1983	5.	1.	58.	7.	51.	81.	0.	0.	0.	0.	0.	0.	81.	460.	46.	323.
1984	6.	1.	63.	8.	55.	94.	0.	0.	0.	0.	0.	0.	94.	554.	48.	372.
1985	9.	2.	70.	10.	60.	120.	0.	0.	0.	0.	0.	0.	120.	674.	56.	427.
1986	7.	1.	76.	10.	66.	121.	0.	0.	0.	0.	0.	0.	121.	795.	52.	479.
1987	10.	2.	84.	11.	73.	136.	0.	0.	0.	0.	0.	0.	136.	931.	52.	531.
1988	11.	1.	94.	14.	80.	175.	0.	0.	0.	0.	0.	0.	175.	1106.	61.	593.
1989	11.	2.	103.	13.	90.	165.	0.	0.	0.	0.	0.	0.	165.	1272.	53.	645.
1990	11.	2.	112.	15.	97.	441.	0.	0.	0.	0.	0.	0.	441.	1713.	128.	773.
1991	12.	3.	121.	16.	105.	384.	0.	0.	0.	0.	0.	0.	384.	2097.	101.	874.
1992	13.	2.	132.	20.	112.	455.	0.	0.	0.	0.	0.	0.	455.	2552.	109.	983.
1993	13.	3.	142.	18.	124.	401.	0.	0.	0.	0.	0.	0.	401.	2953.	87.	1071.
1994	15.	3.	154.	19.	135.	420.	0.	0.	0.	0.	0.	0.	420.	3373.	83.	1154.
1995	15.	3.	166.	20.	146.	447.	0.	0.	0.	0.	0.	0.	447.	3820.	80.	1234.
1996	16.	3.	179.	23.	156.	522.	0.	0.	0.	0.	0.	0.	522.	4342.	85.	1319.
1997	18.	4.	193.	24.	169.	553.	0.	0.	0.	0.	0.	0.	553.	4895.	82.	1402.
1998	19.	4.	208.	25.	182.	608.	0.	0.	0.	0.	0.	0.	608.	5503.	82.	1484.
1999	20.	4.	224.	45.	181.	921.	0.	0.	0.	0.	0.	0.	1021.	6525.	125.	1609.
2000	20.	4.	240.	20.	220.	482.	0.	0.	0.	0.	0.	0.	482.	7007.	54.	1663.
2001	0.	0.	240.	11.	229.	269.	0.	0.	0.	0.	0.	0.	269.	7277.	27.	1690.
2002	0.	0.	240.	15.	224.	398.	0.	0.	0.	0.	0.	0.	398.	7674.	37.	1727.
2003	0.	0.	240.	20.	220.	505.	0.	0.	0.	0.	0.	0.	505.	8180.	42.	1770.
2004	0.	0.	240.	18.	222.	462.	0.	0.	0.	0.	0.	0.	462.	8641.	35.	1805.
2005	0.	0.	240.	19.	221.	495.	0.	0.	0.	0.	0.	0.	495.	9136.	34.	1839.
2006	0.	0.	240.	20.	220.	529.	0.	0.	0.	0.	0.	0.	529.	9665.	33.	1872.
2007	0.	0.	240.	23.	217.	616.	0.	0.	0.	0.	0.	0.	616.	10282.	35.	1908.
2008	0.	0.	240.	24.	216.	654.	0.	0.	0.	0.	0.	0.	654.	10937.	34.	1942.
2009	0.	0.	240.	26.	214.	720.	0.	0.	0.	0.	0.	0.	720.	11656.	34.	1976.
2010	0.	0.	240.	43.	197.	1209.	0.	0.	0.	0.	0.	0.	1209.	12865.	52.	2028.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA RNAV
USER GROUP: AIR TAXI
AIRCRAFT TYPE: PISTON
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PLNGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	4.	2.	73.	5.	68.	47.	0.	5.	0.	64.	0.	0.	9.	9.	8.	8.
1979	4.	1.	76.	8.	68.	76.	0.	8.	0.	66.	0.	0.	34.	43.	28.	36.
1980	6.	2.	80.	9.	71.	86.	0.	9.	0.	70.	0.	0.	41.	84.	31.	67.
1981	6.	1.	85.	11.	74.	106.	0.	11.	0.	76.	0.	0.	56.	140.	38.	105.
1982	8.	1.	86.	10.	78.	98.	0.	10.	0.	80.	0.	0.	47.	186.	29.	134.
1983	4.	2.	90.	9.	81.	89.	0.	9.	0.	82.	0.	0.	37.	224.	21.	155.
1984	4.	1.	93.	10.	83.	100.	0.	10.	0.	86.	0.	0.	46.	269.	23.	179.
1985	4.	2.	95.	9.	86.	91.	0.	9.	0.	92.	0.	0.	34.	304.	16.	195.
1986	5.	2.	98.	11.	87.	113.	0.	11.	0.	98.	0.	0.	51.	355.	22.	216.
1987	5.	1.	102.	12.	90.	125.	0.	13.	0.	103.	0.	0.	59.	414.	23.	239.
1988	10.	2.	110.	16.	94.	169.	0.	17.	0.	112.	0.	0.	94.	507.	33.	272.
1989	6.	2.	114.	9.	105.	96.	0.	10.	0.	112.	0.	0.	29.	536.	9.	281.
1990	8.	3.	119.	13.	106.	276.	0.	28.	0.	139.	0.	0.	176.	712.	51.	332.
1991	8.	2.	125.	15.	110.	259.	0.	26.	0.	161.	0.	0.	149.	860.	39.	371.
1992	8.	2.	131.	17.	114.	287.	0.	29.	0.	189.	0.	0.	160.	1021.	38.	409.
1993	8.	2.	137.	16.	121.	275.	0.	27.	0.	212.	0.	0.	137.	1157.	30.	439.
1994	10.	4.	143.	15.	128.	261.	0.	26.	0.	232.	0.	0.	115.	1272.	23.	462.
1995	9.	2.	150.	17.	133.	301.	0.	30.	0.	251.	0.	0.	140.	1413.	25.	487.
1996	11.	4.	157.	16.	141.	288.	0.	29.	0.	278.	0.	0.	114.	1527.	19.	506.
1997	11.	4.	164.	18.	146.	329.	0.	33.	0.	286.	0.	0.	147.	1674.	22.	528.
1998	11.	3.	172.	20.	152.	371.	0.	37.	0.	302.	0.	0.	177.	1851.	24.	552.
1999	11.	4.	179.	32.	147.	602.	0.	60.	0.	347.	0.	0.	362.	2213.	44.	596.
2000	11.	4.	186.	11.	175.	210.	0.	21.	0.	337.	0.	0.	14.	2227.	2.	598.
2001	0.	0.	186.	4.	177.	175.	0.	17.	0.	325.	0.	0.	-12.	2215.	-1.	596.
2002	0.	0.	186.	15.	171.	296.	0.	30.	0.	324.	0.	0.	97.	2312.	9.	605.
2003	0.	0.	186.	17.	169.	340.	0.	34.	0.	332.	0.	0.	134.	2446.	11.	617.
2004	0.	0.	186.	16.	170.	323.	0.	33.	0.	331.	0.	0.	120.	2566.	9.	626.
2005	0.	0.	186.	15.	171.	309.	0.	31.	0.	322.	0.	0.	111.	2677.	8.	633.
2006	0.	0.	186.	17.	169.	356.	0.	36.	0.	287.	0.	0.	171.	2848.	11.	644.
2007	0.	0.	186.	16.	170.	340.	0.	34.	0.	306.	0.	0.	147.	2995.	8.	653.
2008	0.	0.	186.	18.	166.	389.	0.	39.	0.	337.	0.	0.	175.	3170.	9.	662.
2009	0.	0.	186.	20.	166.	439.	0.	44.	0.	357.	0.	0.	209.	3379.	10.	672.
2010	0.	0.	186.	32.	154.	713.	0.	71.	0.	410.	0.	0.	428.	3808.	18.	690.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA RNAV
USER GROUP: ATR TAXI
AIRCRAFT TYPE: HELICOPTER
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	1.	0.	23.	2.	21.	19.	0.	2.	0.	20.	0.	0.	6.	6.	6.	6.
1979	2.	1.	24.	2.	22.	19.	0.	2.	0.	21.	0.	0.	6.	12.	5.	11.
1980	1.	0.	25.	3.	22.	29.	0.	3.	0.	22.	0.	0.	14.	27.	11.	21.
1981	2.	1.	26.	3.	23.	29.	0.	3.	0.	23.	0.	0.	14.	41.	10.	31.
1982	1.	0.	27.	3.	24.	29.	0.	3.	0.	24.	0.	0.	14.	55.	9.	40.
1983	2.	1.	28.	3.	25.	30.	0.	3.	0.	26.	0.	0.	13.	68.	7.	47.
1984	0.	0.	28.	2.	26.	20.	0.	2.	0.	25.	0.	0.	5.	73.	3.	50.
1985	2.	1.	29.	4.	25.	41.	0.	4.	0.	26.	0.	0.	22.	95.	10.	60.
1986	0.	0.	29.	2.	27.	21.	0.	2.	0.	28.	0.	0.	4.	99.	2.	62.
1987	2.	1.	30.	3.	27.	31.	0.	3.	0.	29.	0.	0.	13.	112.	5.	67.
1988	0.	1.	29.	2.	27.	21.	0.	2.	0.	28.	0.	0.	5.	117.	2.	68.
1989	2.	0.	31.	4.	27.	43.	0.	4.	0.	29.	0.	0.	23.	140.	7.	76.
1990	2.	1.	32.	5.	29.	64.	0.	6.	0.	34.	0.	0.	39.	179.	11.	87.
1991	2.	0.	34.	5.	29.	86.	0.	8.	0.	44.	0.	0.	55.	234.	14.	102.
1992	2.	1.	35.	4.	31.	68.	0.	7.	0.	48.	0.	0.	36.	270.	9.	110.
1993	3.	1.	37.	5.	32.	86.	0.	9.	0.	57.	0.	0.	48.	318.	10.	121.
1994	1.	0.	38.	4.	34.	70.	0.	7.	0.	62.	0.	0.	30.	348.	6.	127.
1995	3.	1.	40.	4.	36.	71.	0.	7.	0.	70.	0.	0.	28.	376.	5.	132.
1996	3.	1.	42.	6.	36.	108.	0.	11.	0.	79.	0.	0.	56.	432.	9.	141.
1997	3.	1.	44.	4.	40.	73.	0.	7.	0.	80.	0.	0.	24.	456.	4.	144.
1998	3.	1.	46.	5.	41.	93.	0.	9.	0.	81.	0.	0.	41.	497.	6.	150.
1999	3.	1.	48.	8.	40.	151.	0.	15.	0.	93.	0.	0.	87.	584.	11.	161.
2000	3.	1.	50.	5.	47.	57.	0.	6.	0.	89.	0.	0.	5.	590.	1.	161.
2001	0.	0.	50.	2.	48.	39.	0.	4.	0.	84.	0.	0.	-9.	581.	-1.	160.
2002	0.	0.	50.	5.	45.	99.	0.	10.	0.	88.	0.	0.	43.	624.	4.	164.
2003	0.	0.	50.	4.	46.	80.	0.	8.	0.	84.	0.	0.	28.	652.	2.	167.
2004	0.	0.	50.	5.	45.	102.	0.	10.	0.	89.	0.	0.	45.	697.	3.	170.
2005	0.	0.	50.	4.	45.	83.	0.	8.	0.	87.	0.	0.	29.	726.	2.	172.
2006	0.	0.	50.	4.	40.	84.	0.	8.	0.	78.	0.	0.	35.	761.	2.	174.
2007	0.	0.	50.	6.	44.	128.	0.	13.	0.	88.	0.	0.	69.	831.	4.	178.
2008	0.	0.	50.	4.	46.	86.	0.	9.	0.	94.	0.	0.	29.	859.	1.	180.
2009	0.	0.	50.	5.	45.	110.	0.	11.	0.	96.	0.	0.	49.	908.	2.	182.
2010	0.	0.	50.	6.	42.	178.	0.	18.	0.	110.	0.	0.	103.	1011.	4.	187.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA RNAV
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: 1-2 ENG. JET
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	1.	0.	19.	2.	17.	19.	0.	2.	0.	17.	0.	0.	8.	8.	7.	7.
1979	2.	1.	20.	2.	18.	19.	0.	2.	0.	18.	0.	0.	8.	16.	6.	14.
1980	2.	0.	22.	3.	19.	29.	0.	3.	0.	20.	0.	0.	16.	31.	12.	25.
1981	3.	1.	24.	4.	20.	39.	0.	4.	0.	23.	0.	0.	23.	54.	16.	41.
1982	4.	1.	27.	5.	22.	49.	0.	5.	0.	27.	0.	0.	30.	84.	19.	60.
1983	1.	0.	28.	2.	26.	20.	0.	2.	0.	27.	0.	0.	4.	88.	2.	62.
1984	2.	1.	29.	3.	28.	30.	0.	3.	0.	29.	0.	0.	12.	100.	6.	68.
1985	4.	1.	32.	5.	27.	51.	0.	5.	0.	34.	0.	0.	28.	128.	13.	81.
1986	4.	1.	35.	5.	30.	51.	0.	5.	0.	38.	0.	0.	26.	154.	11.	92.
1987	3.	1.	37.	4.	33.	42.	0.	4.	0.	40.	0.	0.	17.	171.	6.	98.
1988	6.	1.	42.	7.	35.	74.	0.	7.	0.	45.	0.	0.	43.	214.	15.	114.
1989	4.	1.	45.	5.	40.	54.	0.	5.	0.	46.	0.	0.	24.	238.	8.	121.
1990	5.	1.	49.	6.	43.	127.	0.	13.	0.	61.	0.	0.	83.	321.	24.	145.
1991	5.	1.	53.	7.	46.	121.	0.	12.	0.	74.	0.	0.	70.	391.	18.	164.
1992	6.	1.	58.	9.	49.	152.	0.	15.	0.	89.	0.	0.	91.	482.	22.	185.
1993	5.	1.	62.	9.	53.	155.	0.	15.	0.	103.	0.	0.	85.	567.	19.	204.
1994	6.	1.	67.	7.	60.	122.	0.	12.	0.	115.	0.	0.	50.	617.	10.	214.
1995	6.	1.	72.	8.	64.	142.	0.	14.	0.	125.	0.	0.	63.	680.	11.	225.
1996	6.	1.	77.	10.	67.	180.	0.	18.	0.	143.	0.	0.	88.	767.	14.	239.
1997	7.	1.	83.	11.	72.	201.	0.	20.	0.	153.	0.	0.	101.	868.	15.	254.
1998	8.	2.	89.	10.	79.	185.	0.	19.	0.	162.	0.	0.	82.	951.	11.	266.
1999	7.	1.	95.	18.	77.	339.	0.	34.	0.	189.	0.	0.	207.	1157.	25.	291.
2000	7.	1.	101.	7.	94.	134.	0.	13.	0.	186.	0.	0.	24.	1181.	3.	294.
2001	0.	0.	101.	5.	96.	97.	0.	10.	0.	182.	0.	0.	-8.	1174.	-1.	293.
2002	0.	0.	101.	7.	94.	138.	0.	14.	0.	182.	0.	0.	30.	1203.	3.	296.
2003	0.	0.	101.	9.	92.	180.	0.	18.	0.	182.	0.	0.	67.	1271.	6.	301.
2004	0.	0.	101.	9.	92.	183.	0.	18.	0.	179.	0.	0.	71.	1342.	5.	307.
2005	0.	0.	101.	7.	94.	144.	0.	14.	0.	174.	0.	0.	40.	1382.	3.	309.
2006	0.	0.	101.	8.	93.	168.	0.	17.	0.	149.	0.	0.	73.	1455.	5.	314.
2007	0.	0.	101.	10.	91.	213.	0.	21.	0.	160.	0.	0.	108.	1563.	6.	320.
2008	0.	0.	101.	11.	90.	238.	0.	24.	0.	180.	0.	0.	120.	1683.	6.	327.
2009	0.	0.	101.	10.	91.	219.	0.	22.	0.	192.	0.	0.	98.	1781.	5.	331.
2010	0.	0.	101.	18.	83.	401.	0.	40.	0.	224.	0.	0.	245.	2025.	11.	342.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA RNAV
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: PISTON
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	186.	69.	3587.	280.	3307.	2611.	0.	261.	0.	3173.	0.	0.	701.	701.	637.	637.
1979	197.	74.	3710.	353.	3357.	3333.	0.	333.	0.	3246.	0.	0.	1312.	2012.	1084.	1721.
1980	247.	73.	3884.	438.	3446.	4184.	0.	418.	0.	3415.	0.	0.	1990.	4002.	1495.	3216.
1981	310.	79.	4115.	523.	3592.	5054.	0.	505.	0.	3682.	0.	0.	2634.	6636.	1799.	5015.
1982	219.	81.	4253.	450.	3803.	4400.	0.	440.	0.	3832.	0.	0.	1968.	8603.	1222.	6236.
1983	191.	80.	4318.	395.	3922.	3921.	0.	392.	0.	3888.	0.	0.	1507.	10110.	851.	7087.
1984	193.	86.	4430.	459.	3971.	4603.	0.	460.	0.	4015.	0.	0.	2055.	12165.	1054.	8141.
1985	221.	89.	4562.	494.	4068.	5017.	0.	502.	0.	4359.	0.	0.	2249.	14414.	1049.	9191.
1986	236.	92.	4706.	520.	4186.	5349.	0.	535.	0.	4647.	0.	0.	2398.	16812.	1017.	10207.
1987	245.	95.	4856.	534.	4317.	5616.	0.	562.	0.	4851.	0.	0.	2532.	19344.	976.	11184.
1988	408.	97.	5167.	715.	4452.	7546.	0.	755.	0.	5208.	0.	0.	4085.	23429.	1432.	12616.
1989	336.	105.	5398.	511.	4587.	5476.	0.	548.	0.	5362.	0.	0.	2141.	25570.	682.	13298.
1990	361.	108.	5651.	606.	5045.	12843.	0.	1284.	0.	6036.	0.	0.	8108.	33678.	2349.	15646.
1991	380.	114.	5917.	704.	5213.	12135.	0.	1214.	0.	7712.	0.	0.	6911.	40589.	1820.	17466.
1992	396.	118.	6198.	804.	5394.	13594.	0.	1359.	0.	8937.	0.	0.	7587.	48176.	1816.	19282.
1993	414.	124.	6488.	740.	5748.	12705.	0.	1270.	0.	9988.	0.	0.	6240.	54416.	1358.	20640.
1994	437.	130.	6795.	705.	6042.	12256.	0.	1226.	0.	10937.	0.	0.	5343.	59759.	1057.	21698.
1995	455.	137.	7113.	777.	6330.	13755.	0.	1375.	0.	11823.	0.	0.	6231.	65990.	1121.	22819.
1996	477.	142.	7448.	829.	6619.	14902.	0.	1490.	0.	13170.	0.	0.	6563.	72553.	1073.	23891.
1997	493.	149.	7792.	864.	6928.	15770.	0.	1577.	0.	13588.	0.	0.	7128.	79681.	1059.	24951.
1998	524.	155.	8164.	911.	7254.	16885.	0.	1688.	0.	14266.	0.	0.	7778.	87459.	1051.	26002.
1999	547.	164.	8547.	1609.	6938.	30282.	0.	3028.	0.	16651.	0.	0.	18596.	106054.	2284.	28286.
2000	547.	164.	8930.	547.	8583.	10454.	0.	1045.	0.	16329.	0.	0.	917.	106971.	102.	28389.
2001	0.	0.	8930.	442.	8488.	8577.	0.	858.	0.	15803.	0.	0.	-498.	106473.	-51.	28338.
2002	0.	0.	8930.	704.	8226.	13872.	0.	1387.	0.	15820.	0.	0.	4259.	110732.	393.	28731.
2003	0.	0.	8930.	804.	8126.	16067.	0.	1609.	0.	15990.	0.	0.	6164.	116896.	517.	29248.
2004	0.	0.	8930.	740.	8190.	15035.	0.	1504.	0.	15885.	0.	0.	5272.	122167.	402.	29650.
2005	0.	0.	8930.	705.	8227.	14504.	0.	1450.	0.	15545.	0.	0.	4970.	127138.	345.	29995.
2006	0.	0.	8930.	777.	8153.	16278.	0.	1628.	0.	13544.	0.	0.	7607.	134745.	480.	30475.
2007	0.	0.	8930.	829.	8101.	17035.	0.	1704.	0.	14570.	0.	0.	8295.	143041.	475.	30950.
2008	0.	0.	8930.	864.	8066.	18063.	0.	1806.	0.	16011.	0.	0.	8472.	151512.	441.	31391.
2009	0.	0.	8930.	911.	8019.	19982.	0.	1998.	0.	16884.	0.	0.	9205.	160717.	436.	31827.
2010	0.	0.	8930.	1609.	7321.	35837.	0.	3584.	0.	19705.	0.	0.	22007.	182724.	948.	32775.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA RNAV
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: HELICOPTER
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	2.	1.	29.	2.	27.	19.	0.	2.	0.	25.	0.	0.	4.	4.	3.	3.
1979	1.	1.	29.	2.	27.	19.	0.	2.	0.	24.	0.	0.	4.	8.	4.	7.
1980	2.	1.	30.	3.	27.	29.	0.	3.	0.	25.	0.	0.	13.	21.	10.	16.
1981	2.	1.	31.	4.	27.	39.	0.	4.	0.	27.	0.	0.	21.	42.	14.	31.
1982	1.	0.	32.	3.	29.	29.	0.	3.	0.	27.	0.	0.	12.	54.	6.	38.
1983	2.	1.	33.	4.	29.	40.	0.	4.	0.	29.	0.	0.	21.	75.	12.	50.
1984	0.	0.	33.	3.	30.	30.	0.	3.	0.	29.	0.	0.	12.	87.	6.	56.
1985	3.	1.	35.	5.	30.	51.	0.	5.	0.	34.	0.	0.	28.	115.	13.	69.
1986	1.	0.	36.	4.	32.	41.	0.	4.	0.	37.	0.	0.	18.	133.	8.	77.
1987	2.	1.	37.	4.	33.	42.	0.	4.	0.	34.	0.	0.	17.	150.	7.	84.
1988	0.	1.	36.	2.	30.	21.	0.	2.	0.	36.	0.	0.	0.	150.	0.	84.
1989	3.	1.	38.	4.	34.	43.	0.	4.	0.	38.	0.	0.	19.	169.	6.	90.
1990	2.	1.	39.	3.	36.	64.	0.	6.	0.	42.	0.	0.	36.	204.	10.	100.
1991	3.	1.	41.	5.	36.	86.	0.	9.	0.	50.	0.	0.	52.	256.	14.	114.
1992	2.	1.	42.	5.	37.	85.	0.	8.	0.	54.	0.	0.	48.	304.	11.	125.
1993	4.	1.	45.	6.	39.	103.	0.	10.	0.	63.	0.	0.	60.	364.	13.	138.
1994	2.	0.	47.	5.	41.	105.	0.	10.	0.	72.	0.	0.	57.	420.	11.	149.
1995	4.	1.	50.	6.	44.	106.	0.	11.	0.	84.	0.	0.	52.	472.	9.	159.
1996	4.	1.	53.	6.	45.	144.	0.	14.	0.	99.	0.	0.	78.	550.	13.	171.
1997	3.	1.	55.	6.	49.	110.	0.	11.	0.	105.	0.	0.	44.	594.	7.	178.
1998	4.	1.	58.	7.	51.	130.	0.	13.	0.	112.	0.	0.	59.	653.	8.	186.
1999	4.	1.	61.	9.	52.	169.	0.	17.	0.	124.	0.	0.	88.	741.	11.	197.
2000	4.	1.	64.	4.	60.	76.	0.	8.	0.	120.	0.	0.	6.	747.	1.	197.
2001	0.	0.	64.	2.	62.	39.	0.	4.	0.	111.	0.	0.	-23.	724.	-2.	195.
2002	0.	0.	64.	5.	59.	99.	0.	10.	0.	109.	0.	0.	32.	756.	3.	198.
2003	0.	0.	64.	5.	59.	100.	0.	10.	0.	103.	0.	0.	36.	793.	3.	201.
2004	0.	0.	64.	6.	58.	122.	0.	12.	0.	105.	0.	0.	55.	848.	4.	205.
2005	0.	0.	64.	6.	58.	124.	0.	12.	0.	104.	0.	0.	57.	905.	4.	209.
2006	0.	0.	64.	6.	58.	126.	0.	13.	0.	98.	0.	0.	62.	967.	4.	213.
2007	0.	0.	64.	8.	56.	170.	0.	17.	0.	111.	0.	0.	95.	1063.	5.	218.
2008	0.	0.	64.	6.	58.	130.	0.	13.	0.	124.	0.	0.	52.	1115.	3.	221.
2009	0.	0.	64.	7.	57.	154.	0.	15.	0.	132.	0.	0.	69.	1184.	3.	224.
2010	0.	0.	64.	9.	55.	200.	0.	20.	0.	146.	0.	0.	104.	1288.	4.	229.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA RNAV
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: PISTON
REGION(S): CONUS ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	0.	0.	4.	0.	4.	0.	0.	0.	0.	4.	0.	0.	-2.	-2.	-2.	-2.
1979	0.	0.	4.	0.	4.	0.	0.	0.	0.	3.	0.	0.	-1.	-3.	-1.	-3.
1980	0.	0.	4.	1.	3.	10.	0.	1.	0.	4.	0.	0.	7.	3.	5.	2.
1981	1.	0.	5.	1.	4.	10.	0.	1.	0.	4.	0.	0.	7.	10.	5.	7.
1982	0.	0.	5.	0.	5.	0.	0.	0.	0.	4.	0.	0.	-2.	8.	-1.	5.
1983	0.	0.	5.	1.	4.	10.	0.	1.	0.	4.	0.	0.	7.	15.	4.	9.
1984	0.	0.	5.	0.	5.	0.	0.	0.	0.	4.	0.	0.	-2.	12.	-1.	8.
1985	0.	0.	5.	1.	4.	10.	0.	1.	0.	6.	0.	0.	6.	19.	3.	11.
1986	0.	0.	5.	0.	5.	0.	0.	0.	0.	6.	0.	0.	-3.	16.	-1.	10.
1987	0.	0.	5.	1.	4.	10.	0.	1.	0.	6.	0.	0.	6.	22.	2.	12.
1988	1.	0.	6.	1.	5.	11.	0.	1.	0.	6.	0.	0.	6.	29.	2.	14.
1989	1.	1.	6.	1.	5.	11.	0.	1.	0.	7.	0.	0.	6.	34.	2.	16.
1990	0.	0.	6.	0.	6.	0.	0.	0.	0.	6.	0.	0.	-3.	31.	-1.	15.
1991	0.	0.	6.	0.	6.	0.	0.	0.	0.	6.	0.	0.	-3.	28.	-1.	14.
1992	1.	0.	7.	2.	5.	34.	0.	3.	0.	9.	0.	0.	26.	54.	6.	21.
1993	0.	0.	7.	0.	7.	0.	0.	0.	0.	9.	0.	0.	-5.	49.	-1.	20.
1994	0.	0.	7.	1.	6.	17.	0.	2.	0.	10.	0.	0.	10.	59.	2.	22.
1995	1.	0.	8.	1.	7.	18.	0.	2.	0.	11.	0.	0.	10.	69.	2.	23.
1996	0.	0.	8.	1.	7.	18.	0.	2.	0.	12.	0.	0.	10.	79.	2.	25.
1997	0.	0.	8.	0.	8.	0.	0.	0.	0.	12.	0.	0.	-6.	72.	-1.	24.
1998	3.	1.	10.	3.	7.	56.	0.	6.	0.	20.	0.	0.	39.	112.	5.	29.
1999	0.	0.	10.	2.	8.	38.	0.	4.	0.	21.	0.	0.	23.	135.	3.	32.
2000	0.	0.	10.	0.	10.	0.	0.	0.	0.	21.	0.	0.	-11.	124.	-1.	31.
2001	0.	0.	10.	0.	10.	0.	0.	0.	0.	18.	0.	0.	-10.	114.	-1.	30.
2002	0.	0.	10.	0.	10.	0.	0.	0.	0.	16.	0.	0.	-8.	106.	-1.	29.
2003	0.	0.	10.	2.	8.	40.	0.	4.	0.	19.	0.	0.	26.	132.	2.	31.
2004	0.	0.	10.	0.	10.	0.	0.	0.	0.	19.	0.	0.	-10.	122.	-1.	31.
2005	0.	0.	10.	1.	9.	21.	0.	2.	0.	14.	0.	0.	11.	134.	1.	31.
2006	0.	0.	10.	1.	9.	21.	0.	2.	0.	12.	0.	0.	13.	146.	1.	32.
2007	0.	0.	10.	1.	9.	21.	0.	2.	0.	15.	0.	0.	12.	158.	1.	33.
2008	0.	0.	10.	0.	10.	0.	0.	0.	0.	15.	0.	0.	-8.	150.	-0.	33.
2009	0.	0.	10.	3.	7.	66.	0.	7.	0.	24.	0.	0.	47.	197.	2.	35.
2010	0.	0.	10.	2.	8.	45.	0.	4.	0.	25.	0.	0.	27.	224.	1.	36.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA RNAV
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: HELICOPTER
REGION(S): CONUS CONUS OFF-SH

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	0.	0.	6.	0.	12.	0.	0.	0.	0.	14.	0.	0.	-7.	-7.	-7.	-7.
1979	1.	0.	7.	4.	10.	50.	0.	5.	0.	18.	0.	0.	36.	29.	30.	23.
1980	0.	0.	7.	0.	14.	0.	0.	0.	0.	18.	0.	0.	-9.	20.	-7.	16.
1981	0.	0.	7.	2.	12.	25.	0.	2.	0.	18.	0.	0.	13.	33.	9.	25.
1982	1.	0.	8.	2.	14.	25.	0.	2.	0.	18.	0.	0.	13.	46.	8.	33.
1983	1.	1.	8.	2.	14.	25.	0.	2.	0.	21.	0.	0.	11.	57.	6.	40.
1984	0.	0.	8.	0.	16.	0.	0.	0.	0.	18.	0.	0.	-9.	48.	-5.	35.
1985	1.	0.	9.	4.	14.	50.	0.	5.	0.	25.	0.	0.	32.	80.	15.	50.
1986	0.	0.	9.	2.	16.	25.	0.	3.	0.	21.	0.	0.	11.	91.	5.	55.
1987	0.	0.	9.	0.	18.	0.	0.	0.	0.	21.	0.	0.	-11.	80.	-4.	50.
1988	1.	0.	10.	4.	16.	51.	0.	5.	0.	25.	0.	0.	32.	112.	11.	62.
1989	1.	1.	10.	2.	18.	25.	0.	3.	0.	25.	0.	0.	10.	122.	3.	65.
1990	1.	0.	11.	2.	18.	42.	0.	4.	0.	28.	0.	0.	24.	146.	7.	72.
1991	0.	0.	11.	0.	20.	0.	0.	0.	0.	28.	0.	0.	-14.	132.	-4.	68.
1992	1.	0.	12.	2.	18.	34.	0.	3.	0.	25.	0.	0.	17.	149.	4.	72.
1993	2.	1.	13.	2.	18.	34.	0.	3.	0.	27.	0.	0.	17.	166.	4.	76.
1994	0.	0.	13.	1.	18.	17.	0.	2.	0.	29.	0.	0.	1.	167.	0.	76.
1995	1.	0.	14.	1.	19.	16.	0.	2.	0.	24.	0.	0.	3.	170.	1.	77.
1996	1.	0.	15.	3.	16.	54.	0.	5.	0.	29.	0.	0.	34.	204.	6.	82.
1997	2.	1.	16.	2.	17.	37.	0.	4.	0.	28.	0.	0.	18.	222.	3.	85.
1998	1.	0.	17.	1.	19.	19.	0.	2.	0.	30.	0.	0.	1.	223.	0.	85.
1999	1.	0.	18.	4.	14.	75.	0.	8.	0.	36.	0.	0.	49.	272.	6.	91.
2000	1.	0.	19.	1.	18.	19.	0.	2.	0.	34.	0.	0.	-1.	271.	-0.	91.
2001	0.	0.	19.	2.	17.	39.	0.	4.	0.	37.	0.	0.	16.	287.	2.	92.
2002	0.	0.	19.	0.	19.	0.	0.	0.	0.	35.	0.	0.	-18.	269.	-2.	91.
2003	0.	0.	19.	2.	17.	40.	0.	4.	0.	33.	0.	0.	19.	288.	2.	92.
2004	0.	0.	19.	2.	17.	41.	0.	4.	0.	33.	0.	0.	19.	307.	1.	94.
2005	0.	0.	19.	1.	18.	21.	0.	2.	0.	33.	0.	0.	1.	308.	0.	94.
2006	0.	0.	19.	1.	18.	21.	0.	2.	0.	26.	0.	0.	5.	314.	0.	94.
2007	0.	0.	19.	3.	16.	64.	0.	6.	0.	32.	0.	0.	41.	355.	2.	97.
2008	0.	0.	19.	2.	17.	43.	0.	4.	0.	33.	0.	0.	22.	377.	1.	98.
2009	0.	0.	19.	1.	18.	22.	0.	2.	0.	36.	0.	0.	1.	378.	0.	98.
2010	0.	0.	19.	4.	15.	89.	0.	9.	0.	43.	0.	0.	58.	435.	2.	100.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA RNAV
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: PISTON
REGION(S): ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	1.	1.	21.	1.	20.	9.	0.	1.	0.	18.	0.	0.	-1.	-1.	-1.	-1.
1979	1.	0.	22.	2.	20.	19.	0.	2.	0.	18.	0.	0.	8.	7.	6.	5.
1980	2.	1.	23.	3.	20.	29.	0.	3.	0.	20.	0.	0.	16.	22.	12.	17.
1981	2.	1.	24.	3.	21.	29.	0.	3.	0.	21.	0.	0.	15.	37.	10.	27.
1982	1.	0.	25.	3.	22.	29.	0.	3.	0.	23.	0.	0.	14.	52.	9.	36.
1983	1.	1.	25.	2.	23.	20.	0.	2.	0.	22.	0.	0.	6.	58.	4.	40.
1984	1.	1.	25.	2.	23.	20.	0.	2.	0.	22.	0.	0.	7.	65.	3.	43.
1985	1.	1.	25.	2.	23.	20.	0.	2.	0.	24.	0.	0.	6.	71.	3.	46.
1986	2.	1.	26.	3.	23.	31.	0.	3.	0.	25.	0.	0.	15.	85.	6.	52.
1987	1.	0.	27.	4.	23.	42.	0.	4.	0.	27.	0.	0.	23.	109.	9.	61.
1988	3.	1.	29.	4.	25.	42.	0.	4.	0.	29.	0.	0.	23.	131.	8.	69.
1989	2.	1.	30.	2.	28.	21.	0.	2.	0.	28.	0.	0.	5.	136.	1.	71.
1990	3.	1.	32.	4.	28.	85.	0.	8.	0.	37.	0.	0.	57.	193.	16.	87.
1991	3.	1.	34.	5.	29.	86.	0.	9.	0.	47.	0.	0.	53.	246.	14.	101.
1992	4.	1.	37.	8.	31.	101.	0.	10.	0.	58.	0.	0.	61.	307.	15.	116.
1993	4.	1.	40.	9.	34.	103.	0.	10.	0.	69.	0.	0.	57.	364.	12.	128.
1994	3.	1.	42.	4.	38.	70.	0.	7.	0.	73.	0.	0.	25.	389.	5.	133.
1995	4.	1.	45.	5.	40.	89.	0.	9.	0.	79.	0.	0.	38.	428.	7.	140.
1996	4.	1.	48.	5.	43.	90.	0.	9.	0.	89.	0.	0.	35.	462.	6.	146.
1997	4.	1.	51.	6.	45.	110.	0.	11.	0.	93.	0.	0.	50.	512.	7.	153.
1998	4.	1.	54.	7.	47.	130.	0.	13.	0.	99.	0.	0.	65.	578.	9.	162.
1999	5.	1.	58.	10.	48.	188.	0.	19.	0.	111.	0.	0.	112.	689.	14.	176.
2000	5.	1.	62.	5.	57.	96.	0.	10.	0.	110.	0.	0.	29.	718.	3.	179.
2001	0.	0.	62.	3.	59.	58.	0.	6.	0.	109.	0.	0.	-4.	714.	-0.	179.
2002	0.	0.	62.	5.	57.	99.	0.	10.	0.	110.	0.	0.	32.	746.	3.	182.
2003	0.	0.	62.	6.	56.	120.	0.	12.	0.	114.	0.	0.	49.	794.	4.	186.
2004	0.	0.	62.	6.	56.	122.	0.	12.	0.	116.	0.	0.	49.	844.	4.	190.
2005	0.	0.	62.	4.	58.	83.	0.	8.	0.	109.	0.	0.	17.	861.	1.	191.
2006	0.	0.	62.	5.	57.	105.	0.	10.	0.	97.	0.	0.	44.	905.	3.	193.
2007	0.	0.	62.	5.	57.	106.	0.	11.	0.	99.	0.	0.	44.	949.	3.	196.
2008	0.	0.	62.	6.	56.	130.	0.	13.	0.	109.	0.	0.	60.	1009.	3.	199.
2009	0.	0.	62.	7.	55.	154.	0.	15.	0.	117.	0.	0.	77.	1086.	4.	203.
2010	0.	0.	62.	10.	52.	223.	0.	22.	0.	132.	0.	0.	132.	1218.	6.	208.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA RNAV
USER GROUP: PER-OTHER
AIRCRAFT TYPE: PISTON
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	240.	95.	4949.	377.	4572.	3516.	0.	0.	0.	0.	0.	0.	3516.	3516.	3196.	3196.
1979	259.	100.	5108.	470.	4632.	4494.	0.	0.	0.	0.	0.	0.	4494.	8010.	3714.	6910.
1980	331.	102.	5337.	595.	4742.	5684.	0.	0.	0.	0.	0.	0.	5684.	13694.	4270.	11181.
1981	411.	106.	5642.	708.	4934.	6841.	0.	0.	0.	0.	0.	0.	6841.	20535.	4673.	15853.
1982	285.	113.	5814.	604.	5210.	5906.	0.	0.	0.	0.	0.	0.	5906.	26440.	3667.	19520.
1983	193.	116.	5891.	534.	5357.	5287.	0.	0.	0.	0.	0.	0.	5287.	31728.	2985.	22505.
1984	257.	119.	6029.	618.	5411.	6198.	0.	0.	0.	0.	0.	0.	6198.	37925.	3180.	25685.
1985	286.	120.	6195.	667.	5528.	6774.	0.	0.	0.	0.	0.	0.	6774.	44700.	3160.	28845.
1986	301.	123.	6373.	697.	5676.	7170.	0.	0.	0.	0.	0.	0.	7170.	51870.	3041.	31886.
1987	316.	128.	6561.	726.	5835.	7565.	0.	0.	0.	0.	0.	0.	7565.	59434.	2917.	34803.
1988	470.	130.	6901.	899.	6002.	9491.	0.	0.	0.	0.	0.	0.	9491.	68925.	3326.	38129.
1989	432.	139.	7194.	670.	6524.	7180.	0.	0.	0.	0.	0.	0.	7180.	76105.	2288.	40417.
1990	405.	144.	7515.	797.	6718.	16891.	0.	0.	0.	0.	0.	0.	16891.	92997.	4893.	45310.
1991	485.	151.	7849.	929.	6920.	16014.	0.	0.	0.	0.	0.	0.	16014.	109010.	4217.	49527.
1992	509.	156.	8202.	1061.	7141.	17939.	0.	0.	0.	0.	0.	0.	17939.	126949.	4294.	53821.
1993	528.	164.	8566.	968.	7598.	16619.	0.	0.	0.	0.	0.	0.	16619.	143568.	3617.	57438.
1994	556.	173.	8949.	917.	8032.	15986.	0.	0.	0.	0.	0.	0.	15986.	159554.	3163.	60601.
1995	579.	179.	9349.	1018.	8331.	18021.	0.	0.	0.	0.	0.	0.	18021.	177575.	3241.	63842.
1996	610.	187.	9772.	1090.	8682.	19593.	0.	0.	0.	0.	0.	0.	19593.	197168.	3204.	67045.
1997	625.	194.	10203.	1128.	9075.	20589.	0.	0.	0.	0.	0.	0.	20589.	217758.	3060.	70106.
1998	672.	205.	10670.	1193.	9477.	22112.	0.	0.	0.	0.	0.	0.	22112.	239869.	2988.	73094.
1999	693.	214.	11149.	2048.	9101.	38544.	0.	0.	0.	0.	0.	0.	38544.	278413.	4735.	77829.
2000	693.	214.	11628.	693.	10435.	13244.	0.	0.	0.	0.	0.	0.	13244.	291657.	1479.	79308.
2001	0.	0.	11628.	583.	11045.	11314.	0.	0.	0.	0.	0.	0.	11314.	302971.	1149.	80456.
2002	0.	0.	11628.	929.	10699.	18306.	0.	0.	0.	0.	0.	0.	18306.	321277.	1690.	82146.
2003	0.	0.	11628.	1061.	10567.	21230.	0.	0.	0.	0.	0.	0.	21230.	342506.	1781.	83927.
2004	0.	0.	11628.	968.	10660.	19668.	0.	0.	0.	0.	0.	0.	19668.	362174.	1500.	85428.
2005	0.	0.	11628.	917.	10711.	18919.	0.	0.	0.	0.	0.	0.	18919.	381093.	1312.	86739.
2006	0.	0.	11628.	1018.	10610.	21327.	0.	0.	0.	0.	0.	0.	21327.	402420.	1344.	88084.
2007	0.	0.	11628.	1090.	10538.	23188.	0.	0.	0.	0.	0.	0.	23188.	425607.	1329.	89413.
2008	0.	0.	11628.	1128.	10500.	24366.	0.	0.	0.	0.	0.	0.	24366.	449974.	1269.	90682.
2009	0.	0.	11628.	1193.	10435.	26168.	0.	0.	0.	0.	0.	0.	26168.	476142.	1239.	91922.
2010	0.	0.	11628.	2048.	9580.	45615.	0.	0.	0.	0.	0.	0.	45615.	521757.	1964.	93886.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA RNAV
USER GROUP: PER-OTHER
AIRCRAFT TYPE: HELICOPTER
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	1.	0.	16.	2.	14.	19.	0.	0.	0.	0.	0.	0.	19.	19.	17.	17.
1979	1.	1.	16.	1.	15.	9.	0.	0.	0.	0.	0.	0.	9.	28.	8.	25.
1980	1.	0.	17.	2.	15.	19.	0.	0.	0.	0.	0.	0.	19.	47.	14.	39.
1981	2.	1.	18.	2.	16.	19.	0.	0.	0.	0.	0.	0.	19.	67.	13.	52.
1982	1.	0.	19.	2.	17.	20.	0.	0.	0.	0.	0.	0.	20.	86.	12.	64.
1983	1.	1.	19.	2.	17.	20.	0.	0.	0.	0.	0.	0.	20.	105.	11.	76.
1984	0.	0.	19.	1.	18.	10.	0.	0.	0.	0.	0.	0.	10.	116.	5.	81.
1985	1.	1.	19.	2.	17.	20.	0.	0.	0.	0.	0.	0.	20.	136.	9.	90.
1986	1.	0.	20.	3.	17.	31.	0.	0.	0.	0.	0.	0.	31.	167.	13.	103.
1987	1.	1.	20.	1.	19.	10.	0.	0.	0.	0.	0.	0.	10.	178.	4.	107.
1988	0.	1.	19.	1.	18.	11.	0.	0.	0.	0.	0.	0.	11.	189.	4.	111.
1989	1.	1.	19.	2.	17.	21.	0.	0.	0.	0.	0.	0.	21.	209.	7.	118.
1990	1.	1.	19.	1.	18.	21.	0.	0.	0.	0.	0.	0.	21.	231.	6.	124.
1991	1.	0.	20.	3.	17.	52.	0.	0.	0.	0.	0.	0.	52.	282.	14.	138.
1992	1.	1.	20.	2.	18.	34.	0.	0.	0.	0.	0.	0.	34.	316.	8.	146.
1993	2.	1.	21.	3.	18.	52.	0.	0.	0.	0.	0.	0.	52.	368.	11.	157.
1994	1.	0.	22.	3.	19.	52.	0.	0.	0.	0.	0.	0.	52.	420.	10.	167.
1995	1.	1.	22.	1.	21.	18.	0.	0.	0.	0.	0.	0.	18.	438.	3.	170.
1996	2.	1.	23.	3.	20.	54.	0.	0.	0.	0.	0.	0.	54.	492.	9.	179.
1997	2.	1.	24.	4.	20.	73.	0.	0.	0.	0.	0.	0.	73.	565.	11.	190.
1998	1.	0.	25.	2.	23.	37.	0.	0.	0.	0.	0.	0.	37.	602.	5.	195.
1999	2.	1.	26.	4.	22.	75.	0.	0.	0.	0.	0.	0.	75.	677.	9.	204.
2000	2.	1.	27.	2.	25.	38.	0.	0.	0.	0.	0.	0.	38.	715.	4.	209.
2001	0.	0.	27.	0.	27.	0.	0.	0.	0.	0.	0.	0.	0.	715.	0.	209.
2002	0.	0.	27.	3.	24.	59.	0.	0.	0.	0.	0.	0.	59.	774.	5.	214.
2003	0.	0.	27.	2.	25.	40.	0.	0.	0.	0.	0.	0.	40.	814.	3.	217.
2004	0.	0.	27.	3.	24.	61.	0.	0.	0.	0.	0.	0.	61.	875.	5.	222.
2005	0.	0.	27.	3.	24.	62.	0.	0.	0.	0.	0.	0.	62.	937.	4.	226.
2006	0.	0.	27.	1.	26.	21.	0.	0.	0.	0.	0.	0.	21.	958.	1.	228.
2007	0.	0.	27.	3.	24.	64.	0.	0.	0.	0.	0.	0.	64.	1022.	4.	231.
2008	0.	0.	27.	4.	23.	86.	0.	0.	0.	0.	0.	0.	86.	1108.	5.	236.
2009	0.	0.	27.	2.	25.	44.	0.	0.	0.	0.	0.	0.	44.	1152.	2.	238.
2010	0.	0.	27.	4.	23.	89.	0.	0.	0.	0.	0.	0.	89.	1241.	4.	242.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA RNAV
USER GROUP: PER-OTHER
AIRCRAFT TYPE: PISTON
REGION(S): CONUS ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	1.	0.	18.	2.	16.	19.	0.	0.	0.	0.	0.	0.	19.	19.	17.	17.
1979	1.	0.	19.	2.	17.	19.	0.	0.	0.	0.	0.	0.	19.	38.	16.	33.
1980	1.	1.	19.	1.	18.	10.	0.	0.	0.	0.	0.	0.	10.	47.	7.	40.
1981	2.	0.	21.	4.	17.	39.	0.	0.	0.	0.	0.	0.	39.	86.	26.	66.
1982	1.	1.	21.	1.	20.	10.	0.	0.	0.	0.	0.	0.	10.	96.	6.	72.
1983	0.	0.	21.	2.	19.	20.	0.	0.	0.	0.	0.	0.	20.	115.	11.	83.
1984	1.	1.	21.	2.	19.	20.	0.	0.	0.	0.	0.	0.	20.	135.	10.	94.
1985	1.	0.	22.	2.	20.	20.	0.	0.	0.	0.	0.	0.	20.	156.	9.	103.
1986	1.	1.	22.	2.	20.	21.	0.	0.	0.	0.	0.	0.	21.	176.	9.	112.
1987	1.	1.	22.	2.	20.	21.	0.	0.	0.	0.	0.	0.	21.	197.	8.	120.
1988	1.	0.	23.	3.	20.	32.	0.	0.	0.	0.	0.	0.	32.	229.	11.	131.
1989	3.	1.	25.	4.	21.	43.	0.	0.	0.	0.	0.	0.	43.	272.	14.	145.
1990	2.	1.	26.	3.	23.	64.	0.	0.	0.	0.	0.	0.	64.	335.	18.	163.
1991	1.	0.	27.	2.	25.	34.	0.	0.	0.	0.	0.	0.	34.	370.	9.	172.
1992	3.	1.	29.	6.	23.	101.	0.	0.	0.	0.	0.	0.	101.	471.	24.	196.
1993	2.	1.	30.	2.	28.	34.	0.	0.	0.	0.	0.	0.	34.	505.	7.	204.
1994	2.	1.	31.	3.	28.	52.	0.	0.	0.	0.	0.	0.	52.	558.	10.	214.
1995	3.	1.	33.	4.	29.	71.	0.	0.	0.	0.	0.	0.	71.	629.	13.	227.
1996	2.	1.	34.	3.	31.	54.	0.	0.	0.	0.	0.	0.	54.	683.	9.	236.
1997	2.	0.	36.	4.	32.	73.	0.	0.	0.	0.	0.	0.	73.	756.	11.	247.
1998	4.	2.	38.	4.	34.	74.	0.	0.	0.	0.	0.	0.	74.	830.	10.	257.
1999	3.	1.	40.	9.	31.	169.	0.	0.	0.	0.	0.	0.	169.	999.	21.	278.
2000	3.	1.	42.	3.	39.	57.	0.	0.	0.	0.	0.	0.	57.	1056.	6.	284.
2001	0.	0.	42.	2.	40.	39.	0.	0.	0.	0.	0.	0.	39.	1095.	4.	288.
2002	0.	0.	42.	2.	40.	39.	0.	0.	0.	0.	0.	0.	39.	1135.	4.	291.
2003	0.	0.	42.	6.	36.	120.	0.	0.	0.	0.	0.	0.	120.	1255.	10.	302.
2004	0.	0.	42.	2.	40.	41.	0.	0.	0.	0.	0.	0.	41.	1295.	3.	305.
2005	0.	0.	42.	5.	34.	62.	0.	0.	0.	0.	0.	0.	62.	1357.	4.	309.
2006	0.	0.	42.	4.	38.	84.	0.	0.	0.	0.	0.	0.	84.	1441.	5.	314.
2007	0.	0.	42.	3.	39.	64.	0.	0.	0.	0.	0.	0.	64.	1505.	4.	318.
2008	0.	0.	42.	4.	38.	86.	0.	0.	0.	0.	0.	0.	86.	1591.	5.	322.
2009	0.	0.	42.	4.	38.	88.	0.	0.	0.	0.	0.	0.	88.	1679.	4.	327.
2010	0.	0.	42.	9.	33.	200.	0.	0.	0.	0.	0.	0.	200.	1879.	9.	335.

SHORT USER OUTPUT

AVIONICS CATEGORY: INT. COST GA RNAV
USER GROUP: PER-OTHER
AIRCRAFT TYPE: PISTON
REGION(S): ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	1.	0.	31.	2.	29.	19.	0.	0.	0.	0.	0.	0.	19.	19.	17.	17.
1979	3.	1.	33.	4.	29.	36.	0.	0.	0.	0.	0.	0.	38.	56.	31.	48.
1980	2.	1.	34.	4.	30.	38.	0.	0.	0.	0.	0.	0.	38.	95.	29.	77.
1981	4.	1.	37.	5.	32.	48.	0.	0.	0.	0.	0.	0.	48.	143.	33.	110.
1982	2.	1.	38.	3.	34.	39.	0.	0.	0.	0.	0.	0.	39.	182.	24.	134.
1983	2.	1.	39.	4.	35.	40.	0.	0.	0.	0.	0.	0.	40.	222.	22.	157.
1984	2.	1.	40.	4.	35.	40.	0.	0.	0.	0.	0.	0.	40.	262.	21.	177.
1985	3.	1.	42.	5.	37.	51.	0.	0.	0.	0.	0.	0.	51.	313.	24.	201.
1986	2.	1.	43.	4.	39.	41.	0.	0.	0.	0.	0.	0.	41.	354.	17.	218.
1987	2.	1.	44.	5.	39.	52.	0.	0.	0.	0.	0.	0.	52.	406.	20.	238.
1988	4.	1.	47.	6.	41.	63.	0.	0.	0.	0.	0.	0.	63.	469.	22.	261.
1989	4.	1.	50.	5.	45.	54.	0.	0.	0.	0.	0.	0.	54.	523.	17.	278.
1990	4.	1.	53.	7.	46.	148.	0.	0.	0.	0.	0.	0.	148.	671.	43.	321.
1991	4.	1.	56.	7.	49.	121.	0.	0.	0.	0.	0.	0.	121.	792.	32.	352.
1992	5.	1.	60.	9.	51.	152.	0.	0.	0.	0.	0.	0.	152.	944.	36.	389.
1993	4.	1.	63.	7.	56.	120.	0.	0.	0.	0.	0.	0.	120.	1064.	26.	415.
1994	5.	1.	67.	8.	59.	139.	0.	0.	0.	0.	0.	0.	139.	1204.	28.	443.
1995	5.	1.	71.	8.	63.	142.	0.	0.	0.	0.	0.	0.	142.	1345.	25.	468.
1996	6.	1.	76.	10.	66.	180.	0.	0.	0.	0.	0.	0.	180.	1525.	29.	497.
1997	5.	1.	80.	8.	72.	146.	0.	0.	0.	0.	0.	0.	146.	1671.	22.	519.
1998	6.	1.	85.	10.	75.	185.	0.	0.	0.	0.	0.	0.	185.	1856.	25.	544.
1999	6.	2.	89.	15.	74.	282.	0.	0.	0.	0.	0.	0.	282.	2139.	35.	579.
2000	5.	2.	93.	6.	87.	115.	0.	0.	0.	0.	0.	0.	115.	2253.	13.	592.
2001	0.	0.	93.	5.	88.	97.	0.	0.	0.	0.	0.	0.	97.	2350.	10.	601.
2002	0.	0.	93.	7.	86.	138.	0.	0.	0.	0.	0.	0.	138.	2488.	13.	614.
2003	0.	0.	93.	9.	84.	180.	0.	0.	0.	0.	0.	0.	180.	2668.	15.	629.
2004	0.	0.	93.	7.	86.	142.	0.	0.	0.	0.	0.	0.	142.	2811.	11.	640.
2005	0.	0.	93.	8.	85.	165.	0.	0.	0.	0.	0.	0.	165.	2976.	11.	652.
2006	0.	0.	93.	8.	83.	168.	0.	0.	0.	0.	0.	0.	168.	3143.	11.	662.
2007	0.	0.	93.	10.	83.	213.	0.	0.	0.	0.	0.	0.	213.	3356.	12.	674.
2008	0.	0.	93.	8.	85.	173.	0.	0.	0.	0.	0.	0.	173.	3529.	0.	663.
2009	0.	0.	93.	10.	83.	219.	0.	0.	0.	0.	0.	0.	219.	3748.	10.	694.
2010	0.	0.	93.	15.	78.	334.	0.	0.	0.	0.	0.	0.	334.	4082.	14.	708.

SHORT USER OUTPUT

AVIONICS CATEGORY: HIGH COST GA RNAV
USER GROUP: AIR TAXI
AIRCRAFT TYPE: PISTON
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	3.	1.	48.	4.	44.	95.	0.	10.	0.	108.	0.	0.	30.	30.	27.	27.
1979	3.	1.	50.	5.	45.	120.	0.	12.	0.	113.	0.	0.	50.	79.	41.	68.
1980	4.	1.	53.	7.	46.	169.	0.	17.	0.	121.	0.	0.	89.	169.	67.	135.
1981	5.	1.	57.	8.	49.	194.	0.	19.	0.	133.	0.	0.	106.	275.	72.	208.
1982	4.	1.	60.	7.	53.	171.	0.	17.	0.	144.	0.	0.	79.	354.	49.	257.
1983	3.	1.	62.	6.	56.	148.	0.	15.	0.	145.	0.	0.	58.	412.	33.	289.
1984	4.	1.	65.	8.	57.	199.	0.	20.	0.	157.	0.	0.	98.	509.	50.	339.
1985	5.	1.	69.	9.	60.	226.	0.	23.	0.	175.	0.	0.	112.	621.	52.	392.
1986	5.	1.	73.	8.	65.	202.	0.	20.	0.	187.	0.	0.	85.	706.	36.	428.
1987	5.	1.	77.	10.	67.	255.	0.	26.	0.	199.	0.	0.	126.	832.	49.	476.
1988	10.	1.	86.	14.	72.	360.	0.	36.	0.	223.	0.	0.	208.	1040.	73.	549.
1989	7.	2.	91.	9.	82.	233.	0.	23.	0.	232.	0.	0.	89.	1129.	28.	577.
1990	7.	2.	96.	10.	86.	376.	0.	38.	0.	265.	0.	0.	201.	1330.	58.	636.
1991	7.	2.	101.	12.	89.	369.	0.	37.	0.	289.	0.	0.	182.	1513.	48.	684.
1992	8.	2.	107.	14.	93.	400.	0.	40.	0.	314.	0.	0.	197.	1710.	47.	731.
1993	8.	2.	113.	13.	100.	356.	0.	36.	0.	336.	0.	0.	146.	1856.	32.	763.
1994	9.	2.	120.	13.	107.	348.	0.	35.	0.	349.	0.	0.	132.	1988.	26.	789.
1995	9.	2.	127.	15.	112.	405.	0.	40.	0.	356.	0.	0.	179.	2167.	32.	821.
1996	10.	2.	135.	17.	118.	466.	0.	47.	0.	389.	0.	0.	217.	2384.	35.	857.
1997	10.	3.	142.	15.	127.	417.	0.	42.	0.	395.	0.	0.	170.	2555.	25.	882.
1998	11.	3.	150.	18.	132.	509.	0.	51.	0.	415.	0.	0.	242.	2797.	33.	915.
1999	11.	3.	158.	31.	127.	889.	0.	89.	0.	484.	0.	0.	549.	3345.	67.	982.
2000	11.	3.	166.	11.	155.	320.	0.	32.	0.	479.	0.	0.	39.	3384.	4.	986.
2001	0.	0.	166.	7.	159.	207.	0.	21.	0.	459.	0.	0.	-52.	3332.	-5.	981.
2002	0.	0.	166.	12.	154.	360.	0.	36.	0.	453.	0.	0.	89.	3421.	8.	989.
2003	0.	0.	166.	14.	152.	427.	0.	43.	0.	447.	0.	0.	152.	3573.	13.	1002.
2004	0.	0.	166.	13.	153.	403.	0.	40.	0.	445.	0.	0.	131.	3704.	10.	1012.
2005	0.	0.	166.	15.	153.	409.	0.	41.	0.	431.	0.	0.	144.	3848.	10.	1022.
2006	0.	0.	166.	15.	151.	479.	0.	48.	0.	372.	0.	0.	238.	4085.	15.	1037.
2007	0.	0.	166.	17.	149.	551.	0.	55.	0.	405.	0.	0.	285.	4371.	16.	1053.
2008	0.	0.	166.	15.	151.	494.	0.	49.	0.	446.	0.	0.	213.	4583.	11.	1064.
2009	0.	0.	166.	16.	148.	602.	0.	60.	0.	481.	0.	0.	292.	4875.	14.	1078.
2010	0.	0.	166.	31.	135.	1052.	0.	105.	0.	570.	0.	0.	651.	5526.	28.	1106.

SHOPT USER OUTPUT

AVIONICS CATEGORY: HIGH COST GA RNAV
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: PISTON
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	12.	3.	183.	17.	166.	405.	0.	41.	0.	419.	0.	0.	147.	147.	134.	134.
1979	14.	4.	193.	22.	171.	528.	0.	53.	0.	441.	0.	0.	246.	393.	203.	337.
1980	17.	4.	206.	26.	180.	628.	0.	63.	0.	477.	0.	0.	317.	711.	238.	576.
1981	22.	4.	224.	33.	191.	802.	0.	80.	0.	533.	0.	0.	444.	1155.	303.	879.
1982	17.	5.	236.	27.	209.	660.	0.	66.	0.	566.	0.	0.	300.	1455.	186.	1065.
1983	13.	5.	244.	25.	219.	616.	0.	62.	0.	587.	0.	0.	249.	1704.	141.	1206.
1984	17.	5.	256.	29.	227.	721.	0.	72.	0.	623.	0.	0.	325.	2029.	167.	1373.
1985	19.	5.	270.	32.	238.	802.	0.	80.	0.	680.	0.	0.	369.	2398.	172.	1545.
1986	20.	5.	285.	34.	251.	860.	0.	86.	0.	727.	0.	0.	396.	2793.	168.	1713.
1987	22.	6.	301.	36.	265.	918.	0.	92.	0.	769.	0.	0.	427.	3220.	165.	1877.
1988	41.	6.	334.	55.	281.	1414.	0.	141.	0.	856.	0.	0.	827.	4048.	290.	2167.
1989	27.	7.	356.	37.	314.	959.	0.	96.	0.	899.	0.	0.	396.	4443.	126.	2293.
1990	30.	7.	379.	45.	334.	1094.	0.	109.	0.	1053.	0.	0.	977.	5421.	283.	2576.
1991	31.	7.	403.	50.	353.	1539.	0.	154.	0.	1170.	0.	0.	777.	6198.	205.	2781.
1992	33.	8.	428.	58.	370.	1659.	0.	166.	0.	1292.	0.	0.	821.	7019.	197.	2978.
1993	35.	9.	454.	53.	401.	1453.	0.	145.	0.	1377.	0.	0.	592.	7611.	129.	3106.
1994	38.	9.	483.	54.	429.	1447.	0.	145.	0.	1452.	0.	0.	547.	8158.	108.	3215.
1995	39.	10.	511.	57.	454.	1538.	0.	154.	0.	1470.	0.	0.	620.	8778.	112.	3326.
1996	40.	10.	541.	62.	479.	1699.	0.	170.	0.	1576.	0.	0.	710.	9487.	116.	3442.
1997	42.	11.	572.	65.	507.	1808.	0.	181.	0.	1592.	0.	0.	800.	10287.	119.	3561.
1998	46.	12.	606.	70.	536.	1978.	0.	198.	0.	1655.	0.	0.	920.	11207.	124.	3685.
1999	48.	12.	642.	128.	514.	3672.	0.	367.	0.	1942.	0.	0.	2295.	13502.	282.	3967.
2000	48.	12.	678.	48.	630.	1398.	0.	140.	0.	1934.	0.	0.	253.	13754.	28.	3995.
2001	0.	0.	678.	33.	645.	976.	0.	98.	0.	1867.	0.	0.	-92.	13662.	-9.	3986.
2002	0.	0.	678.	50.	628.	1502.	0.	150.	0.	1862.	0.	0.	383.	14046.	35.	4021.
2003	0.	0.	678.	58.	620.	1769.	0.	177.	0.	1872.	0.	0.	619.	14664.	52.	4073.
2004	0.	0.	678.	53.	625.	1641.	0.	164.	0.	1848.	0.	0.	516.	15181.	39.	4113.
2005	0.	0.	678.	54.	624.	1695.	0.	170.	0.	1808.	0.	0.	588.	15769.	41.	4153.
2006	0.	0.	678.	57.	621.	1820.	0.	182.	0.	1544.	0.	0.	836.	16604.	53.	4206.
2007	0.	0.	678.	62.	616.	2010.	0.	201.	0.	1631.	0.	0.	961.	17566.	55.	4261.
2008	0.	0.	678.	65.	613.	2140.	0.	214.	0.	1797.	0.	0.	992.	18557.	52.	4313.
2009	0.	0.	678.	70.	608.	2340.	0.	234.	0.	1917.	0.	0.	1109.	19667.	53.	4365.
2010	0.	0.	678.	128.	550.	4340.	0.	435.	0.	2285.	0.	0.	2723.	22389.	117.	4483.

SHORT USER OUTPUT

AVIONICS CATEGORY: HIGH COST GA RNAV
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: HELICOPTER
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	0.	0.	3.	0.	3.	0.	0.	0.	0.	6.	0.	0.	-3.	-3.	-3.	-3.
1979	0.	0.	3.	0.	3.	0.	0.	0.	0.	6.	0.	0.	-3.	-7.	-3.	-6.
1980	0.	0.	3.	1.	2.	24.	0.	2.	0.	7.	0.	0.	18.	11.	14.	8.
1981	0.	0.	3.	0.	3.	0.	0.	0.	0.	7.	0.	0.	-4.	8.	-2.	5.
1982	0.	0.	3.	0.	3.	0.	0.	0.	0.	7.	0.	0.	-4.	4.	-2.	3.
1983	0.	0.	3.	0.	3.	0.	0.	0.	0.	3.	0.	0.	-2.	3.	-1.	2.
1984	0.	0.	3.	1.	2.	25.	0.	2.	0.	7.	0.	0.	19.	21.	10.	12.
1985	0.	0.	3.	0.	3.	0.	0.	0.	0.	7.	0.	0.	-4.	18.	-2.	10.
1986	0.	0.	3.	0.	3.	0.	0.	0.	0.	7.	0.	0.	-4.	14.	-2.	9.
1987	0.	0.	3.	1.	2.	26.	0.	3.	0.	7.	0.	0.	19.	33.	7.	16.
1988	0.	0.	3.	0.	3.	0.	0.	0.	0.	7.	0.	0.	-4.	30.	-1.	15.
1989	0.	0.	3.	0.	3.	0.	0.	0.	0.	7.	0.	0.	-4.	26.	-1.	14.
1990	0.	0.	3.	0.	3.	0.	0.	0.	0.	7.	0.	0.	-4.	22.	-1.	12.
1991	0.	0.	3.	1.	2.	31.	0.	3.	0.	8.	0.	0.	24.	46.	6.	19.
1992	0.	0.	3.	0.	3.	0.	0.	0.	0.	8.	0.	0.	-4.	41.	-1.	18.
1993	0.	0.	3.	0.	3.	0.	0.	0.	0.	8.	0.	0.	-4.	37.	-1.	17.
1994	0.	0.	3.	0.	3.	0.	0.	0.	0.	4.	0.	0.	-2.	35.	-0.	16.
1995	0.	0.	3.	1.	2.	27.	0.	3.	0.	8.	0.	0.	20.	55.	4.	20.
1996	0.	0.	3.	0.	3.	0.	0.	0.	0.	8.	0.	0.	-4.	51.	-1.	19.
1997	0.	0.	3.	0.	3.	0.	0.	0.	0.	8.	0.	0.	-4.	46.	-1.	19.
1998	0.	0.	3.	1.	2.	28.	0.	3.	0.	8.	0.	0.	21.	68.	3.	21.
1999	0.	0.	3.	0.	3.	0.	0.	0.	0.	8.	0.	0.	-4.	64.	-1.	21.
2000	0.	0.	3.	0.	3.	0.	0.	0.	0.	8.	0.	0.	-4.	59.	-0.	20.
2001	0.	0.	3.	0.	3.	0.	0.	0.	0.	8.	0.	0.	-4.	55.	-0.	20.
2002	0.	0.	3.	1.	2.	30.	0.	3.	0.	8.	0.	0.	23.	78.	2.	22.
2003	0.	0.	3.	0.	3.	0.	0.	0.	0.	8.	0.	0.	-4.	74.	-0.	22.
2004	0.	0.	3.	0.	3.	0.	0.	0.	0.	8.	0.	0.	-4.	69.	-0.	21.
2005	0.	0.	3.	0.	3.	0.	0.	0.	0.	4.	0.	0.	-2.	67.	-0.	21.
2006	0.	0.	3.	1.	2.	32.	0.	3.	0.	9.	0.	0.	24.	91.	2.	23.
2007	0.	0.	3.	0.	3.	0.	0.	0.	0.	9.	0.	0.	-5.	87.	-0.	23.
2008	0.	0.	3.	0.	3.	0.	0.	0.	0.	9.	0.	0.	-5.	82.	-0.	22.
2009	0.	0.	3.	1.	2.	33.	0.	3.	0.	9.	0.	0.	25.	107.	1.	23.
2010	0.	0.	3.	0.	3.	0.	0.	0.	0.	9.	0.	0.	-5.	103.	-0.	23.

SHORT USER OUTPUT

AVIONICS CATEGORY: HIGH COST GA RNAV
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: PISTON
REGION(S): CONUS ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	0.	0.	1.	0.	1.	0.	0.	0.	0.	3.	0.	0.	-2.	-2.	-1.	-1.
1979	0.	0.	1.	0.	1.	0.	0.	0.	0.	3.	0.	0.	-2.	-3.	-1.	-3.
1980	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	-3.	0.	-3.
1981	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	-3.	0.	-3.
1982	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	-3.	0.	-3.
1983	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	-3.	0.	-3.
1984	0.	0.	1.	1.	0.	25.	0.	2.	0.	4.	0.	0.	21.	17.	11.	8.
1985	0.	0.	1.	0.	1.	0.	0.	0.	0.	4.	0.	0.	-2.	15.	-1.	7.
1986	0.	0.	1.	0.	1.	0.	0.	0.	0.	4.	0.	0.	-2.	14.	-1.	6.
1987	0.	0.	1.	0.	1.	0.	0.	0.	0.	4.	0.	0.	-2.	12.	-1.	5.
1988	0.	0.	1.	0.	1.	0.	0.	0.	0.	4.	0.	0.	-2.	10.	-1.	5.
1989	0.	0.	1.	0.	1.	0.	0.	0.	0.	4.	0.	0.	-2.	8.	-1.	4.
1990	0.	0.	1.	0.	1.	0.	0.	0.	0.	4.	0.	0.	-2.	6.	-1.	4.
1991	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	6.	0.	4.
1992	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	6.	0.	4.
1993	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	6.	0.	4.
1994	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	6.	0.	4.
1995	0.	0.	1.	1.	0.	27.	0.	3.	0.	4.	0.	0.	22.	28.	4.	8.
1996	0.	0.	1.	0.	1.	0.	0.	0.	0.	4.	0.	0.	-2.	26.	-0.	7.
1997	0.	0.	1.	0.	1.	0.	0.	0.	0.	4.	0.	0.	-2.	24.	-0.	7.
1998	0.	0.	1.	0.	1.	0.	0.	0.	0.	4.	0.	0.	-2.	22.	-0.	7.
1999	0.	0.	1.	0.	1.	0.	0.	0.	0.	4.	0.	0.	-2.	20.	-0.	6.
2000	0.	0.	1.	0.	1.	0.	0.	0.	0.	4.	0.	0.	-2.	18.	-0.	6.
2001	0.	0.	1.	0.	1.	0.	0.	0.	0.	4.	0.	0.	-2.	16.	-0.	6.
2002	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	16.	0.	6.
2003	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	16.	0.	6.
2004	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	16.	0.	6.
2005	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	16.	0.	6.
2006	0.	0.	1.	1.	0.	32.	0.	3.	0.	5.	0.	0.	26.	43.	2.	8.
2007	0.	0.	1.	0.	1.	0.	0.	0.	0.	5.	0.	0.	-2.	40.	-0.	8.
2008	0.	0.	1.	0.	1.	0.	0.	0.	0.	5.	0.	0.	-2.	38.	-0.	7.
2009	0.	0.	1.	0.	1.	0.	0.	0.	0.	5.	0.	0.	-2.	36.	-0.	7.
2010	0.	0.	1.	0.	1.	0.	0.	0.	0.	5.	0.	0.	-2.	33.	-0.	7.

SHORT USER OUTPUT

AVIONICS CATEGORY: HIGH COST GA RNAV
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: PISTON
REGION(S): ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	0.	0.	2.	0.	2.	0.	0.	0.	0.	3.	0.	0.	-2.	-2.	-2.	-2.
1979	0.	0.	2.	0.	2.	0.	0.	0.	0.	3.	0.	0.	-2.	-3.	-1.	-3.
1980	0.	0.	2.	0.	2.	0.	0.	0.	0.	3.	0.	0.	-2.	-5.	-1.	-4.
1981	0.	0.	2.	1.	1.	24.	0.	2.	0.	7.	0.	0.	18.	13.	13.	8.
1982	0.	0.	2.	0.	2.	0.	0.	0.	0.	3.	0.	0.	-2.	11.	-1.	7.
1983	0.	0.	2.	0.	2.	0.	0.	0.	0.	3.	0.	0.	-2.	10.	-1.	6.
1984	0.	0.	2.	0.	2.	0.	0.	0.	0.	3.	0.	0.	-2.	8.	-1.	5.
1985	0.	0.	2.	0.	2.	0.	0.	0.	0.	3.	0.	0.	-2.	6.	-1.	4.
1986	0.	0.	2.	1.	1.	25.	0.	3.	0.	7.	0.	0.	19.	25.	8.	12.
1987	0.	0.	2.	0.	2.	0.	0.	0.	0.	7.	0.	0.	-4.	21.	-1.	11.
1988	1.	0.	3.	1.	2.	26.	0.	3.	0.	7.	0.	0.	19.	41.	7.	18.
1989	0.	0.	3.	0.	3.	0.	0.	0.	0.	7.	0.	0.	-4.	37.	-1.	17.
1990	0.	0.	3.	0.	3.	0.	0.	0.	0.	7.	0.	0.	-4.	33.	-1.	16.
1991	1.	0.	4.	1.	3.	31.	0.	3.	0.	12.	0.	0.	22.	55.	6.	21.
1992	1.	0.	5.	2.	3.	57.	0.	6.	0.	20.	0.	0.	41.	96.	10.	31.
1993	1.	0.	6.	1.	5.	27.	0.	3.	0.	20.	0.	0.	14.	110.	3.	34.
1994	1.	0.	7.	1.	6.	27.	0.	3.	0.	24.	0.	0.	12.	122.	2.	36.
1995	1.	0.	8.	1.	7.	27.	0.	3.	0.	24.	0.	0.	12.	134.	2.	39.
1996	1.	0.	9.	1.	8.	27.	0.	3.	0.	28.	0.	0.	10.	144.	2.	40.
1997	1.	0.	10.	2.	8.	56.	0.	6.	0.	36.	0.	0.	31.	175.	5.	45.
1998	1.	0.	11.	1.	10.	28.	0.	3.	0.	36.	0.	0.	7.	182.	1.	46.
1999	1.	0.	12.	2.	10.	57.	0.	6.	0.	36.	0.	0.	33.	215.	4.	50.
2000	1.	0.	13.	1.	12.	29.	0.	3.	0.	36.	0.	0.	8.	222.	1.	51.
2001	0.	0.	13.	0.	13.	0.	0.	0.	0.	32.	0.	0.	-17.	206.	-2.	49.
2002	0.	0.	13.	1.	12.	30.	0.	3.	0.	33.	0.	0.	10.	216.	1.	50.
2003	0.	0.	13.	2.	11.	61.	0.	6.	0.	37.	0.	0.	35.	251.	3.	53.
2004	0.	0.	13.	1.	12.	31.	0.	3.	0.	34.	0.	0.	10.	262.	1.	54.
2005	0.	0.	13.	1.	12.	31.	0.	3.	0.	34.	0.	0.	10.	272.	1.	54.
2006	0.	0.	13.	1.	12.	32.	0.	3.	0.	31.	0.	0.	13.	285.	1.	55.
2007	0.	0.	13.	1.	12.	32.	0.	3.	0.	31.	0.	0.	13.	298.	1.	56.
2008	0.	0.	13.	2.	11.	66.	0.	7.	0.	41.	0.	0.	38.	336.	2.	58.
2009	0.	0.	13.	1.	12.	33.	0.	3.	0.	41.	0.	0.	9.	345.	0.	58.
2010	0.	0.	13.	2.	11.	68.	0.	7.	0.	42.	0.	0.	39.	384.	2.	60.

SHORT USER OUTPUT

AVIONICS CATEGORY: HIGH COST GA RNAV
USER GROUP: PER-OTHER
AIRCRAFT TYPE: PISTON
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	2.	0.	25.	3.	22.	72.	0.	0.	0.	0.	0.	0.	72.	72.	65.	65.
1979	2.	0.	27.	4.	23.	96.	0.	0.	0.	0.	0.	0.	96.	168.	79.	144.
1980	3.	0.	30.	4.	26.	97.	0.	0.	0.	0.	0.	0.	97.	264.	73.	217.
1981	3.	1.	32.	4.	28.	97.	0.	0.	0.	0.	0.	0.	97.	361.	66.	283.
1982	3.	1.	34.	4.	30.	98.	0.	0.	0.	0.	0.	0.	98.	459.	61.	344.
1983	2.	1.	35.	4.	31.	99.	0.	0.	0.	0.	0.	0.	99.	558.	56.	400.
1984	3.	1.	37.	4.	33.	99.	0.	0.	0.	0.	0.	0.	99.	657.	51.	451.
1985	3.	1.	39.	4.	35.	100.	0.	0.	0.	0.	0.	0.	100.	758.	47.	498.
1986	3.	1.	41.	5.	36.	126.	0.	0.	0.	0.	0.	0.	126.	884.	54.	551.
1987	4.	1.	44.	5.	39.	128.	0.	0.	0.	0.	0.	0.	128.	1012.	49.	600.
1988	6.	1.	49.	8.	41.	206.	0.	0.	0.	0.	0.	0.	206.	1217.	72.	673.
1989	4.	1.	52.	6.	46.	156.	0.	0.	0.	0.	0.	0.	156.	1373.	50.	722.
1990	5.	1.	56.	8.	48.	301.	0.	0.	0.	0.	0.	0.	301.	1674.	87.	809.
1991	5.	1.	60.	8.	52.	246.	0.	0.	0.	0.	0.	0.	246.	1920.	65.	874.
1992	5.	1.	64.	8.	56.	229.	0.	0.	0.	0.	0.	0.	229.	2149.	55.	929.
1993	6.	1.	69.	9.	60.	247.	0.	0.	0.	0.	0.	0.	247.	2396.	54.	983.
1994	6.	1.	74.	9.	65.	241.	0.	0.	0.	0.	0.	0.	241.	2637.	48.	1030.
1995	6.	1.	79.	9.	70.	243.	0.	0.	0.	0.	0.	0.	243.	2880.	44.	1074.
1996	6.	2.	83.	8.	75.	219.	0.	0.	0.	0.	0.	0.	219.	3099.	36.	1110.
1997	7.	2.	88.	10.	76.	278.	0.	0.	0.	0.	0.	0.	278.	3377.	41.	1151.
1998	7.	2.	93.	10.	83.	283.	0.	0.	0.	0.	0.	0.	283.	3660.	38.	1189.
1999	8.	2.	99.	20.	79.	574.	0.	0.	0.	0.	0.	0.	574.	4233.	70.	1260.
2000	8.	2.	105.	8.	97.	233.	0.	0.	0.	0.	0.	0.	233.	4466.	26.	1286.
2001	0.	0.	105.	6.	99.	177.	0.	0.	0.	0.	0.	0.	177.	4644.	18.	1304.
2002	0.	0.	105.	8.	97.	240.	0.	0.	0.	0.	0.	0.	240.	4884.	22.	1326.
2003	0.	0.	105.	8.	97.	244.	0.	0.	0.	0.	0.	0.	244.	5128.	20.	1347.
2004	0.	0.	105.	9.	96.	279.	0.	0.	0.	0.	0.	0.	279.	5407.	21.	1368.
2005	0.	0.	105.	9.	96.	283.	0.	0.	0.	0.	0.	0.	283.	5690.	20.	1387.
2006	0.	0.	105.	9.	96.	287.	0.	0.	0.	0.	0.	0.	287.	5977.	18.	1406.
2007	0.	0.	105.	8.	97.	259.	0.	0.	0.	0.	0.	0.	259.	6237.	15.	1420.
2008	0.	0.	105.	10.	95.	329.	0.	0.	0.	0.	0.	0.	329.	6566.	17.	1438.
2009	0.	0.	105.	10.	95.	334.	0.	0.	0.	0.	0.	0.	334.	6900.	16.	1453.
2010	0.	0.	105.	20.	85.	679.	0.	0.	0.	0.	0.	0.	679.	7579.	29.	1483.

SHORT USER OUTPUT

AVIONICS CATEGORY: HIGH COST GA RNAV
USER GROUP: PER-OTHER
AIRCRAFT TYPE: PISTON
REGION(S): ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1979	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1980	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1981	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1982	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1983	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1984	0.	0.	1.	1.	0.	25.	0.	0.	0.	0.	0.	0.	25.	25.	13.	13.
1985	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	25.	0.	13.
1986	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	25.	0.	13.
1987	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	25.	0.	13.
1988	1.	0.	2.	1.	1.	26.	0.	0.	0.	0.	0.	0.	26.	51.	9.	22.
1989	0.	0.	2.	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.	51.	0.	22.
1990	0.	0.	2.	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.	51.	0.	22.
1991	1.	0.	3.	1.	2.	31.	0.	0.	0.	0.	0.	0.	31.	81.	8.	30.
1992	1.	0.	4.	1.	3.	29.	0.	0.	0.	0.	0.	0.	29.	110.	7.	37.
1993	1.	0.	5.	1.	4.	27.	0.	0.	0.	0.	0.	0.	27.	137.	6.	43.
1994	1.	0.	6.	1.	5.	27.	0.	0.	0.	0.	0.	0.	27.	164.	5.	48.
1995	1.	0.	7.	2.	5.	54.	0.	0.	0.	0.	0.	0.	54.	218.	10.	58.
1996	1.	0.	8.	1.	7.	27.	0.	0.	0.	0.	0.	0.	27.	246.	4.	62.
1997	1.	0.	9.	1.	8.	28.	0.	0.	0.	0.	0.	0.	28.	273.	4.	66.
1998	1.	0.	10.	1.	9.	28.	0.	0.	0.	0.	0.	0.	28.	302.	4.	70.
1999	1.	0.	11.	2.	9.	57.	0.	0.	0.	0.	0.	0.	57.	359.	7.	77.
2000	1.	0.	12.	1.	11.	29.	0.	0.	0.	0.	0.	0.	29.	388.	3.	80.
2001	0.	0.	12.	0.	12.	0.	0.	0.	0.	0.	0.	0.	0.	388.	0.	80.
2002	0.	0.	12.	1.	11.	30.	0.	0.	0.	0.	0.	0.	30.	418.	3.	83.
2003	0.	0.	12.	1.	11.	31.	0.	0.	0.	0.	0.	0.	31.	449.	3.	86.
2004	0.	0.	12.	1.	11.	31.	0.	0.	0.	0.	0.	0.	31.	480.	2.	88.
2005	0.	0.	12.	1.	11.	31.	0.	0.	0.	0.	0.	0.	31.	511.	2.	90.
2006	0.	0.	12.	2.	10.	64.	0.	0.	0.	0.	0.	0.	64.	575.	4.	94.
2007	0.	0.	12.	1.	11.	32.	0.	0.	0.	0.	0.	0.	32.	607.	2.	96.
2008	0.	0.	12.	1.	11.	33.	0.	0.	0.	0.	0.	0.	33.	640.	2.	98.
2009	0.	0.	12.	1.	11.	33.	0.	0.	0.	0.	0.	0.	33.	674.	2.	99.
2010	0.	0.	12.	2.	10.	68.	0.	0.	0.	0.	0.	0.	68.	742.	3.	102.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 1
USER GROUP: AIR CARRIER
AIRCRAFT TYPE: 3-4 ENG. JET
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	54.	22.	1063.	68.	995.	1915.	0.	192.	0.	2302.	0.	0.	527.	527.	479.	479.
1979	56.	25.	1094.	81.	1015.	2300.	0.	230.	0.	2326.	0.	0.	859.	1386.	710.	1189.
1980	35.	17.	1112.	70.	1036.	2175.	0.	217.	0.	2325.	0.	0.	746.	2134.	562.	1751.
1981	38.	29.	1121.	72.	1049.	2076.	0.	208.	0.	2291.	0.	0.	677.	2811.	462.	2213.
1982	89.	51.	1159.	100.	1053.	3077.	0.	308.	0.	2387.	0.	0.	1528.	4339.	949.	3162.
1983	113.	73.	1199.	113.	1086.	3307.	0.	331.	0.	2499.	0.	0.	1677.	6016.	947.	4109.
1984	138.	88.	1249.	138.	1111.	4094.	0.	409.	0.	2706.	0.	0.	2278.	8294.	1169.	5278.
1985	150.	105.	1294.	150.	1144.	4519.	0.	452.	0.	3078.	0.	0.	2466.	10760.	1151.	6428.
1986	146.	111.	1329.	146.	1183.	4460.	0.	447.	0.	3388.	0.	0.	2258.	13018.	958.	7386.
1987	120.	90.	1365.	126.	1239.	3914.	0.	391.	0.	3636.	0.	0.	1632.	14650.	629.	8015.
1988	81.	55.	1391.	81.	1310.	2555.	0.	255.	0.	3705.	0.	0.	373.	15023.	131.	8146.
1989	62.	39.	1414.	70.	1344.	2242.	0.	224.	0.	3585.	0.	0.	153.	15176.	49.	8195.
1990	79.	49.	1444.	122.	1322.	11505.	0.	1150.	0.	4756.	0.	0.	7881.	23057.	2283.	10477.
1991	108.	66.	1486.	137.	1349.	10708.	0.	1071.	0.	5701.	0.	0.	6673.	29730.	1757.	12235.
1992	96.	59.	1523.	105.	1418.	7072.	0.	707.	0.	6152.	0.	0.	3706.	33436.	887.	13122.
1993	78.	46.	1555.	113.	1482.	7920.	0.	792.	0.	6645.	0.	0.	3673.	37108.	799.	13921.
1994	79.	45.	1589.	110.	1479.	7487.	0.	749.	0.	7156.	0.	0.	3018.	40126.	597.	14518.
1995	84.	53.	1620.	105.	1517.	6861.	0.	686.	0.	7771.	0.	0.	2134.	42260.	384.	14902.
1996	82.	55.	1647.	135.	1514.	8715.	0.	871.	0.	8695.	0.	0.	3322.	45582.	543.	15445.
1997	78.	48.	1677.	143.	1534.	9263.	0.	926.	0.	8375.	0.	0.	3982.	49564.	592.	16037.
1998	72.	41.	1708.	241.	1417.	18698.	0.	1870.	0.	9517.	0.	0.	11880.	61444.	1605.	17642.
1999	80.	50.	1738.	481.	1257.	31259.	0.	3126.	0.	12886.	0.	0.	21432.	82876.	2633.	20275.
2000	80.	50.	1768.	80.	1688.	5279.	0.	528.	0.	12509.	0.	0.	-1753.	81123.	-196.	20079.
2001	0.	0.	1768.	0.	1768.	0.	0.	0.	0.	11439.	0.	0.	-5948.	75174.	-604.	19475.
2002	0.	0.	1768.	0.	1768.	0.	0.	0.	0.	10459.	0.	0.	-5439.	69735.	-502.	18973.
2003	0.	0.	1768.	0.	1768.	0.	0.	0.	0.	9214.	0.	0.	-4791.	64944.	-402.	18571.
2004	0.	0.	1768.	72.	1696.	7051.	0.	505.	0.	8613.	0.	0.	68.	65012.	5.	18576.
2005	0.	0.	1768.	137.	1631.	9760.	0.	976.	0.	7336.	0.	0.	4970.	69981.	345.	18921.
2006	0.	0.	1768.	105.	1663.	7596.	0.	760.	0.	3955.	0.	0.	4779.	74761.	301.	19222.
2007	0.	0.	1768.	113.	1655.	8301.	0.	830.	0.	4387.	0.	0.	5189.	79950.	297.	19520.
2008	0.	0.	1768.	110.	1658.	8205.	0.	820.	0.	5559.	0.	0.	4494.	84444.	234.	19754.
2009	0.	0.	1768.	103.	1665.	7801.	0.	780.	0.	6673.	0.	0.	3551.	87995.	168.	19922.
2010	0.	0.	1768.	133.	1635.	10229.	0.	1023.	0.	8135.	0.	0.	4976.	92971.	214.	20136.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 1
USER GROUP: AIR CARRIER
AIRCRAFT TYPE: 1-2 ENG. JET
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	56.	0.	621.	76.	545.	2140.	0.	214.	0.	1418.	0.	0.	1189.	1189.	1081.	1081.
1979	52.	0.	673.	79.	594.	2243.	0.	224.	0.	1572.	0.	0.	1201.	2390.	993.	2074.
1980	65.	0.	738.	97.	641.	2776.	0.	278.	0.	1797.	0.	0.	1564.	3954.	1175.	3249.
1981	72.	0.	810.	107.	703.	3085.	0.	308.	0.	2055.	0.	0.	1707.	5662.	1166.	4415.
1982	56.	2.	864.	91.	773.	2642.	0.	264.	0.	2243.	0.	0.	1211.	6873.	752.	5167.
1983	57.	16.	905.	80.	825.	2341.	0.	234.	0.	2382.	0.	0.	869.	7741.	490.	5657.
1984	94.	50.	949.	94.	855.	2789.	0.	279.	0.	2574.	0.	0.	1172.	8913.	601.	6258.
1985	150.	102.	997.	150.	847.	4519.	0.	452.	0.	2913.	0.	0.	2552.	11465.	1191.	7449.
1986	200.	148.	1049.	200.	849.	6118.	0.	612.	0.	3467.	0.	0.	3704.	15169.	1571.	9020.
1987	184.	115.	1118.	184.	934.	5716.	0.	572.	0.	3887.	0.	0.	3123.	18291.	1204.	10224.
1988	87.	42.	1163.	87.	1076.	2744.	0.	274.	0.	3838.	0.	0.	474.	18765.	166.	10390.
1989	49.	8.	1204.	49.	1155.	1569.	0.	157.	0.	3685.	0.	0.	-504.	18261.	-161.	10229.
1990	39.	4.	1239.	39.	1200.	3678.	0.	368.	0.	3676.	0.	0.	1294.	19556.	375.	10604.
1991	12.	7.	1244.	12.	1232.	938.	0.	94.	0.	3612.	0.	0.	-1034.	18522.	-272.	10332.
1992	18.	7.	1255.	18.	1237.	1315.	0.	132.	0.	3154.	0.	0.	-456.	18065.	-109.	10223.
1993	28.	12.	1271.	63.	1206.	4416.	0.	442.	0.	2911.	0.	0.	2460.	20526.	535.	10758.
1994	37.	24.	1284.	110.	1174.	7487.	0.	749.	0.	3164.	0.	0.	5093.	25619.	1008.	11766.
1995	51.	37.	1298.	121.	1177.	8060.	0.	806.	0.	3923.	0.	0.	5214.	30833.	938.	12703.
1996	69.	52.	1315.	108.	1207.	7077.	0.	708.	0.	4710.	0.	0.	3920.	34752.	641.	13344.
1997	77.	59.	1333.	98.	1235.	6348.	0.	635.	0.	5092.	0.	0.	3066.	37818.	456.	13800.
1998	83.	65.	1351.	328.	1023.	21076.	0.	2108.	0.	7968.	0.	0.	14825.	52643.	2003.	15803.
1999	86.	68.	1369.	472.	897.	30674.	0.	3067.	0.	12163.	0.	0.	21282.	73926.	2614.	18418.
2000	86.	68.	1387.	86.	1301.	5675.	0.	568.	0.	12343.	0.	0.	-1310.	72615.	-146.	18271.
2001	0.	0.	1387.	0.	1387.	0.	0.	0.	0.	11273.	0.	0.	-5862.	66753.	-595.	17676.
2002	0.	0.	1387.	0.	1387.	0.	0.	0.	0.	10121.	0.	0.	-5263.	61490.	-486.	17191.
2003	0.	0.	1387.	0.	1387.	0.	0.	0.	0.	9111.	0.	0.	-4737.	56753.	-398.	16793.
2004	0.	0.	1387.	0.	1387.	0.	0.	0.	0.	8204.	0.	0.	-4266.	52487.	-325.	16468.
2005	0.	0.	1387.	0.	1387.	0.	0.	0.	0.	5193.	0.	0.	-2700.	49786.	-187.	16280.
2006	0.	0.	1387.	1.	1386.	72.	0.	7.	0.	821.	0.	0.	-362.	49425.	-23.	16258.
2007	0.	0.	1387.	63.	1324.	4628.	0.	463.	0.	671.	0.	0.	3816.	53240.	219.	16476.
2008	0.	0.	1387.	110.	1277.	8205.	0.	820.	0.	1844.	0.	0.	6426.	59666.	335.	16811.
2009	0.	0.	1387.	121.	1266.	9165.	0.	916.	0.	3153.	0.	0.	6609.	66275.	313.	17124.
2010	0.	0.	1387.	108.	1279.	8306.	0.	831.	0.	4339.	0.	0.	5219.	71494.	225.	17349.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 1
USER GROUP: AIR CARRIER
AIRCRAFT TYPE: PISTON
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	0.	23.	275.	0.	275.	0.	0.	0.	0.	587.	0.	0.	-305.	-305.	-277.	-277.
1979	0.	19.	256.	0.	256.	0.	0.	0.	0.	498.	0.	0.	-259.	-564.	-214.	-491.
1980	0.	13.	243.	0.	243.	0.	0.	0.	0.	408.	0.	0.	-212.	-776.	-160.	-651.
1981	0.	12.	231.	0.	231.	0.	0.	0.	0.	313.	0.	0.	-163.	-939.	-111.	-762.
1982	0.	18.	213.	0.	213.	0.	0.	0.	0.	213.	0.	0.	-111.	-1050.	-69.	-831.
1983	0.	11.	202.	4.	198.	117.	0.	12.	0.	124.	0.	0.	41.	-1009.	23.	-808.
1984	0.	10.	192.	12.	180.	356.	0.	36.	0.	68.	0.	0.	285.	-724.	146.	-662.
1985	0.	10.	182.	13.	169.	392.	0.	39.	0.	124.	0.	0.	288.	-436.	134.	-527.
1986	0.	10.	172.	14.	156.	428.	0.	43.	0.	185.	0.	0.	289.	-146.	123.	-404.
1987	0.	8.	164.	16.	148.	497.	0.	50.	0.	256.	0.	0.	314.	168.	121.	-283.
1988	0.	16.	146.	7.	139.	221.	0.	22.	0.	287.	0.	0.	49.	217.	17.	-266.
1989	0.	12.	134.	14.	120.	448.	0.	45.	0.	351.	0.	0.	221.	438.	70.	-196.
1990	0.	14.	120.	13.	107.	1226.	0.	123.	0.	510.	0.	0.	838.	1276.	243.	47.
1991	0.	12.	108.	15.	93.	1172.	0.	117.	0.	626.	0.	0.	729.	2006.	192.	239.
1992	0.	12.	96.	0.	96.	0.	0.	0.	0.	570.	0.	0.	-297.	1709.	-71.	168.
1993	0.	5.	91.	0.	91.	0.	0.	0.	0.	509.	0.	0.	-265.	1445.	-58.	111.
1994	0.	4.	87.	0.	87.	0.	0.	0.	0.	438.	0.	0.	-228.	1217.	-45.	66.
1995	0.	5.	82.	0.	82.	0.	0.	0.	0.	407.	0.	0.	-211.	1005.	-38.	28.
1996	0.	4.	78.	0.	78.	0.	0.	0.	0.	343.	0.	0.	-178.	827.	-29.	-1.
1997	0.	5.	73.	0.	73.	0.	0.	0.	0.	167.	0.	0.	-87.	740.	-13.	-14.
1998	0.	4.	69.	8.	61.	514.	0.	51.	0.	73.	0.	0.	424.	1164.	57.	43.
1999	0.	4.	65.	29.	36.	1885.	0.	188.	0.	343.	0.	0.	1518.	2682.	186.	229.
2000	0.	4.	61.	0.	61.	0.	0.	0.	0.	343.	0.	0.	-178.	2504.	-20.	210.
2001	0.	0.	61.	0.	61.	0.	0.	0.	0.	343.	0.	0.	-178.	2326.	-18.	191.
2002	0.	0.	61.	0.	61.	0.	0.	0.	0.	343.	0.	0.	-178.	2148.	-16.	175.
2003	0.	0.	61.	0.	61.	0.	0.	0.	0.	343.	0.	0.	-178.	1970.	-15.	160.
2004	0.	0.	61.	9.	52.	631.	0.	63.	0.	433.	0.	0.	343.	2313.	26.	186.
2005	0.	0.	61.	15.	45.	1069.	0.	107.	0.	512.	0.	0.	695.	3008.	48.	234.
2006	0.	0.	61.	0.	61.	0.	0.	0.	0.	243.	0.	0.	-126.	2882.	-8.	226.
2007	0.	0.	61.	0.	61.	0.	0.	0.	0.	243.	0.	0.	-126.	2756.	-7.	219.
2008	0.	0.	61.	0.	61.	0.	0.	0.	0.	243.	0.	0.	-126.	2629.	-7.	213.
2009	0.	0.	61.	0.	61.	0.	0.	0.	0.	243.	0.	0.	-126.	2503.	-6.	207.
2010	0.	0.	61.	0.	61.	0.	0.	0.	0.	243.	0.	0.	-126.	2377.	-5.	201.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 1
USER GROUP: AIR CARRIER
AIRCRAFT TYPE: 3-4 ENG. JET
REGION(S): CONUS ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	11.	2.	177.	15.	162.	422.	0.	42.	0.	390.	0.	0.	177.	177.	161.	161.
1979	10.	2.	185.	16.	169.	454.	0.	45.	0.	407.	0.	0.	197.	375.	163.	324.
1980	7.	2.	190.	14.	176.	401.	0.	40.	0.	412.	0.	0.	146.	521.	110.	434.
1981	7.	4.	193.	14.	179.	404.	0.	40.	0.	416.	0.	0.	147.	668.	100.	534.
1982	19.	9.	203.	21.	182.	610.	0.	61.	0.	446.	0.	0.	317.	985.	197.	731.
1983	24.	13.	214.	24.	190.	702.	0.	70.	0.	487.	0.	0.	379.	1363.	214.	945.
1984	28.	15.	227.	28.	199.	831.	0.	83.	0.	546.	0.	0.	464.	1827.	238.	1183.
1985	28.	16.	239.	28.	211.	844.	0.	84.	0.	606.	0.	0.	444.	2271.	207.	1390.
1986	28.	17.	250.	28.	222.	857.	0.	86.	0.	664.	0.	0.	426.	2697.	181.	1571.
1987	24.	13.	261.	24.	237.	746.	0.	75.	0.	713.	0.	0.	300.	2997.	116.	1686.
1988	13.	7.	267.	13.	254.	410.	0.	41.	0.	714.	0.	0.	-2.	2994.	-1.	1685.
1989	11.	6.	272.	17.	255.	544.	0.	54.	0.	705.	0.	0.	124.	3118.	39.	1725.
1990	16.	10.	278.	21.	257.	1980.	0.	198.	0.	887.	0.	0.	1321.	4439.	383.	2107.
1991	22.	14.	286.	23.	263.	1798.	0.	180.	0.	1025.	0.	0.	1085.	5524.	286.	2393.
1992	21.	13.	294.	23.	271.	1680.	0.	168.	0.	1145.	0.	0.	917.	6441.	220.	2613.
1993	17.	10.	301.	25.	278.	1612.	0.	161.	0.	1253.	0.	0.	799.	7240.	174.	2787.
1994	15.	10.	306.	19.	287.	1293.	0.	129.	0.	1331.	0.	0.	472.	7712.	93.	2880.
1995	17.	11.	312.	20.	292.	1332.	0.	133.	0.	1463.	0.	0.	438.	8150.	79.	2959.
1996	15.	11.	316.	25.	291.	1638.	0.	164.	0.	1619.	0.	0.	632.	8782.	103.	3062.
1997	15.	9.	322.	30.	292.	1943.	0.	194.	0.	1614.	0.	0.	910.	9692.	135.	3197.
1998	13.	8.	327.	59.	268.	3791.	0.	379.	0.	1899.	0.	0.	2425.	12117.	328.	3525.
1999	16.	10.	333.	90.	243.	5849.	0.	585.	0.	2494.	0.	0.	3967.	16084.	487.	4012.
2000	16.	10.	339.	16.	323.	1056.	0.	106.	0.	2415.	0.	0.	-305.	15778.	-34.	3978.
2001	0.	0.	339.	0.	339.	0.	0.	0.	0.	2230.	0.	0.	-1160.	14619.	-118.	3860.
2002	0.	0.	339.	0.	339.	0.	0.	0.	0.	2040.	0.	0.	-1061.	13558.	-98.	3763.
2003	0.	0.	339.	0.	339.	0.	0.	0.	0.	1806.	0.	0.	-939.	12619.	-79.	3684.
2004	0.	0.	339.	11.	328.	772.	0.	77.	0.	1638.	0.	0.	-157.	12462.	-12.	3672.
2005	0.	0.	339.	25.	316.	1639.	0.	164.	0.	1331.	0.	0.	783.	13245.	54.	3726.
2006	0.	0.	339.	23.	316.	1664.	0.	166.	0.	733.	0.	0.	1116.	14361.	70.	3796.
2007	0.	0.	339.	23.	316.	1690.	0.	169.	0.	823.	0.	0.	1092.	15454.	63.	3859.
2008	0.	0.	339.	19.	320.	1417.	0.	142.	0.	1026.	0.	0.	742.	16196.	39.	3898.
2009	0.	0.	339.	20.	319.	1515.	0.	151.	0.	1242.	0.	0.	717.	16913.	34.	3932.
2010	0.	0.	339.	25.	314.	1923.	0.	192.	0.	1517.	0.	0.	942.	17855.	41.	3972.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 1
USER GROUP: AIR CARRIER
AIRCRAFT TYPE: 3-4 ENG. JET
REGION(S): CONUS OCEANIC

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	11.	11.	246.	22.	474.	701.	0.	70.	0.	1203.	0.	0.	5.	5.	5.	5.
1979	11.	12.	247.	22.	472.	704.	0.	70.	0.	1145.	0.	0.	38.	43.	32.	36.
1980	10.	10.	247.	24.	470.	772.	0.	77.	0.	1078.	0.	0.	135.	178.	101.	136.
1981	8.	8.	247.	30.	464.	970.	0.	97.	0.	1036.	0.	0.	334.	512.	228.	366.
1982	12.	12.	247.	32.	462.	1038.	0.	104.	0.	1000.	0.	0.	414.	927.	257.	623.
1983	16.	18.	245.	32.	458.	1044.	0.	104.	0.	954.	0.	0.	443.	1370.	250.	873.
1984	22.	21.	246.	44.	448.	1447.	0.	145.	0.	954.	0.	0.	806.	2176.	414.	1287.
1985	29.	31.	244.	58.	430.	1922.	0.	192.	0.	1128.	0.	0.	1143.	3320.	533.	1820.
1986	31.	33.	242.	62.	422.	2071.	0.	207.	0.	1323.	0.	0.	1175.	4495.	499.	2319.
1987	26.	30.	238.	52.	424.	1752.	0.	175.	0.	1463.	0.	0.	815.	5310.	314.	2633.
1988	28.	24.	242.	56.	428.	1903.	0.	190.	0.	1597.	0.	0.	883.	6193.	309.	2943.
1989	18.	12.	248.	36.	460.	1236.	0.	124.	0.	1625.	0.	0.	267.	6460.	85.	3028.
1990	11.	6.	253.	11.	484.	1037.	0.	104.	0.	1624.	0.	0.	89.	6549.	26.	3054.
1991	16.	6.	263.	17.	481.	1329.	0.	133.	0.	1607.	0.	0.	360.	6910.	95.	3148.
1992	14.	5.	272.	20.	476.	1461.	0.	146.	0.	1541.	0.	0.	514.	7423.	123.	3271.
1993	12.	5.	279.	18.	474.	1262.	0.	126.	0.	1426.	0.	0.	394.	7817.	86.	3357.
1994	14.	5.	288.	21.	468.	1429.	0.	143.	0.	1380.	0.	0.	569.	8386.	113.	3470.
1995	20.	7.	301.	28.	459.	1865.	0.	187.	0.	1374.	0.	0.	964.	9350.	173.	3643.
1996	19.	9.	311.	26.	455.	1704.	0.	170.	0.	1441.	0.	0.	784.	10134.	128.	3771.
1997	21.	11.	321.	26.	449.	1684.	0.	168.	0.	1533.	0.	0.	718.	10853.	107.	3878.
1998	20.	11.	330.	76.	341.	4883.	0.	488.	0.	2041.	0.	0.	3334.	14186.	450.	4329.
1999	20.	10.	340.	97.	243.	6304.	0.	630.	0.	2733.	0.	0.	4252.	18439.	522.	4851.
2000	20.	10.	350.	20.	330.	1320.	0.	132.	0.	2741.	0.	0.	-238.	18201.	-27.	4824.
2001	0.	0.	350.	0.	350.	0.	0.	0.	0.	2537.	0.	0.	-1319.	16882.	-134.	4690.
2002	0.	0.	350.	0.	350.	0.	0.	0.	0.	2271.	0.	0.	-1181.	15701.	-109.	4582.
2003	0.	0.	350.	0.	350.	0.	0.	0.	0.	2027.	0.	0.	-1054.	14647.	-88.	4493.
2004	0.	0.	350.	1.	349.	70.	0.	7.	0.	1797.	0.	0.	-871.	13776.	-66.	4427.
2005	0.	0.	350.	17.	333.	1211.	0.	121.	0.	1272.	0.	0.	428.	14204.	30.	4456.
2006	0.	0.	350.	20.	330.	1447.	0.	145.	0.	578.	0.	0.	1001.	15206.	63.	4519.
2007	0.	0.	350.	18.	332.	1322.	0.	132.	0.	579.	0.	0.	889.	16095.	51.	4570.
2008	0.	0.	350.	21.	329.	1566.	0.	157.	0.	802.	0.	0.	993.	17087.	52.	4622.
2009	0.	0.	350.	28.	322.	2121.	0.	212.	0.	1105.	0.	0.	1334.	18421.	63.	4685.
2010	0.	0.	350.	26.	324.	2000.	0.	200.	0.	1391.	0.	0.	1076.	19497.	46.	4732.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 1
USER GROUP: AIR CARRIER
AIRCRAFT TYPE: 3-4 ENG. JET
REGION(S): CONUS ALASKA OCEANIC

YEAR	NEW AC	RET AC	NET PUP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	5.	2.	67.	10.	124.	319.	0.	32.	0.	332.	0.	0.	114.	114.	104.	104.
1979	4.	2.	69.	10.	128.	320.	0.	32.	0.	336.	0.	0.	113.	227.	94.	197.
1980	2.	1.	70.	10.	130.	322.	0.	32.	0.	340.	0.	0.	113.	340.	85.	282.
1981	3.	2.	71.	10.	132.	323.	0.	32.	0.	334.	0.	0.	117.	457.	80.	362.
1982	5.	3.	73.	12.	134.	389.	0.	39.	0.	346.	0.	0.	170.	628.	106.	468.
1983	7.	4.	76.	10.	136.	522.	0.	52.	0.	368.	0.	0.	279.	906.	157.	625.
1984	10.	6.	80.	20.	140.	656.	0.	66.	0.	408.	0.	0.	380.	1286.	195.	820.
1985	10.	8.	82.	20.	144.	663.	0.	66.	0.	457.	0.	0.	359.	1645.	168.	988.
1986	10.	7.	85.	20.	150.	668.	0.	67.	0.	506.	0.	0.	338.	1983.	143.	1131.
1987	9.	7.	87.	10.	156.	606.	0.	61.	0.	547.	0.	0.	261.	2244.	101.	1232.
1988	6.	4.	89.	12.	166.	408.	0.	41.	0.	559.	0.	0.	76.	2321.	27.	1258.
1989	5.	3.	91.	10.	172.	343.	0.	34.	0.	553.	0.	0.	22.	2342.	7.	1265.
1990	6.	4.	93.	6.	174.	566.	0.	57.	0.	559.	0.	0.	219.	2561.	63.	1328.
1991	8.	4.	97.	8.	172.	625.	0.	63.	0.	554.	0.	0.	275.	2835.	72.	1401.
1992	7.	5.	99.	7.	170.	511.	0.	51.	0.	533.	0.	0.	183.	3019.	44.	1445.
1993	6.	3.	102.	7.	169.	491.	0.	49.	0.	507.	0.	0.	178.	3197.	39.	1483.
1994	5.	4.	103.	6.	166.	408.	0.	41.	0.	479.	0.	0.	119.	3315.	23.	1507.
1995	6.	3.	106.	8.	162.	533.	0.	53.	0.	497.	0.	0.	221.	3536.	40.	1547.
1996	5.	3.	108.	8.	158.	524.	0.	52.	0.	523.	0.	0.	200.	3736.	33.	1579.
1997	6.	3.	111.	11.	150.	713.	0.	71.	0.	544.	0.	0.	359.	4095.	53.	1633.
1998	5.	3.	113.	24.	117.	1542.	0.	154.	0.	675.	0.	0.	1037.	5132.	140.	1773.
1999	6.	4.	115.	30.	85.	1950.	0.	195.	0.	880.	0.	0.	1297.	6429.	159.	1932.
2000	6.	4.	117.	6.	111.	396.	0.	40.	0.	867.	0.	0.	-94.	6335.	-11.	1922.
2001	0.	0.	117.	0.	117.	0.	0.	0.	0.	808.	0.	0.	-420.	5915.	-43.	1879.
2002	0.	0.	117.	0.	117.	0.	0.	0.	0.	732.	0.	0.	-381.	5534.	-35.	1844.
2003	0.	0.	117.	0.	117.	0.	0.	0.	0.	657.	0.	0.	-342.	5192.	-29.	1815.
2004	0.	0.	117.	2.	115.	140.	0.	14.	0.	575.	0.	0.	-173.	5019.	-13.	1802.
2005	0.	0.	117.	8.	109.	570.	0.	57.	0.	437.	0.	0.	266.	5305.	20.	1822.
2006	0.	0.	117.	7.	110.	506.	0.	51.	0.	230.	0.	0.	336.	5641.	21.	1843.
2007	0.	0.	117.	7.	110.	514.	0.	51.	0.	247.	0.	0.	334.	5975.	19.	1862.
2008	0.	0.	117.	6.	111.	448.	0.	45.	0.	311.	0.	0.	241.	6216.	13.	1875.
2009	0.	0.	117.	8.	109.	606.	0.	61.	0.	398.	0.	0.	339.	6555.	16.	1891.
2010	0.	0.	117.	8.	109.	615.	0.	62.	0.	486.	0.	0.	301.	6856.	13.	1904.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 1
USER GROUP: AIR CARRIER
AIRCRAFT TYPE: 3-4 ENG. JET
REGION(S): ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	1.	0.	10.	1.	9.	28.	0.	3.	0.	23.	0.	0.	13.	13.	12.	12.
1979	0.	0.	10.	1.	9.	28.	0.	3.	0.	24.	0.	0.	13.	27.	11.	23.
1980	1.	0.	11.	1.	10.	29.	0.	3.	0.	24.	0.	0.	13.	40.	10.	33.
1981	1.	1.	11.	1.	10.	29.	0.	3.	0.	24.	0.	0.	13.	53.	9.	42.
1982	1.	0.	12.	1.	11.	29.	0.	3.	0.	26.	0.	0.	11.	65.	7.	49.
1983	1.	1.	12.	1.	11.	29.	0.	3.	0.	29.	0.	0.	11.	76.	6.	56.
1984	2.	1.	13.	2.	11.	59.	0.	6.	0.	33.	0.	0.	36.	112.	19.	74.
1985	1.	1.	13.	1.	12.	30.	0.	3.	0.	33.	0.	0.	10.	122.	5.	79.
1986	2.	1.	14.	2.	12.	61.	0.	6.	0.	38.	0.	0.	35.	157.	15.	94.
1987	1.	0.	15.	1.	14.	31.	0.	3.	0.	38.	0.	0.	8.	165.	3.	97.
1988	0.	0.	15.	1.	14.	32.	0.	3.	0.	39.	0.	0.	8.	174.	3.	100.
1989	1.	1.	15.	1.	14.	32.	0.	3.	0.	39.	0.	0.	8.	182.	3.	103.
1990	1.	0.	16.	1.	15.	94.	0.	9.	0.	49.	0.	0.	60.	242.	17.	120.
1991	1.	1.	16.	1.	15.	78.	0.	8.	0.	51.	0.	0.	44.	285.	12.	131.
1992	2.	1.	17.	2.	15.	146.	0.	15.	0.	68.	0.	0.	96.	382.	23.	154.
1993	0.	0.	17.	1.	16.	70.	0.	7.	0.	69.	0.	0.	27.	409.	6.	160.
1994	1.	1.	17.	1.	16.	68.	0.	7.	0.	74.	0.	0.	23.	432.	4.	165.
1995	1.	0.	18.	2.	16.	133.	0.	13.	0.	89.	0.	0.	74.	505.	13.	178.
1996	1.	1.	18.	1.	17.	66.	0.	7.	0.	94.	0.	0.	10.	515.	2.	180.
1997	1.	1.	18.	1.	17.	65.	0.	6.	0.	89.	0.	0.	12.	527.	2.	181.
1998	1.	0.	19.	5.	14.	321.	0.	32.	0.	124.	0.	0.	225.	752.	30.	212.
1999	0.	0.	19.	4.	15.	260.	0.	26.	0.	140.	0.	0.	161.	913.	20.	232.
2000	0.	0.	19.	0.	19.	0.	0.	0.	0.	130.	0.	0.	-68.	845.	-6.	226.
2001	0.	0.	19.	0.	19.	0.	0.	0.	0.	121.	0.	0.	-63.	782.	-6.	218.
2002	0.	0.	19.	0.	19.	0.	0.	0.	0.	102.	0.	0.	-53.	729.	-5.	213.
2003	0.	0.	19.	0.	19.	0.	0.	0.	0.	92.	0.	0.	-48.	681.	-4.	209.
2004	0.	0.	19.	1.	18.	70.	0.	7.	0.	93.	0.	0.	15.	696.	1.	210.
2005	0.	0.	19.	1.	18.	71.	0.	7.	0.	57.	0.	0.	34.	730.	2.	212.
2006	0.	0.	19.	2.	17.	145.	0.	14.	0.	41.	0.	0.	109.	839.	7.	219.
2007	0.	0.	19.	1.	18.	73.	0.	7.	0.	51.	0.	0.	39.	879.	2.	221.
2008	0.	0.	19.	1.	18.	75.	0.	7.	0.	62.	0.	0.	35.	914.	2.	223.
2009	0.	0.	19.	2.	17.	151.	0.	15.	0.	94.	0.	0.	93.	1007.	4.	228.
2010	0.	0.	19.	1.	18.	77.	0.	8.	0.	95.	0.	0.	20.	1027.	1.	228.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 1
USER GROUP: AIR CARRIER
AIRCRAFT TYPE: 1-2 ENG. JET
REGION(S): ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	0.	0.	18.	0.	12.	169.	0.	17.	0.	47.	0.	0.	128.	128.	116.	116.
1979	4.	0.	22.	5.	17.	142.	0.	14.	0.	64.	0.	0.	95.	222.	78.	194.
1980	6.	0.	28.	7.	21.	200.	0.	20.	0.	89.	0.	0.	134.	356.	101.	295.
1981	7.	0.	35.	7.	28.	202.	0.	20.	0.	114.	0.	0.	123.	479.	84.	379.
1982	6.	0.	41.	7.	34.	203.	0.	20.	0.	139.	0.	0.	111.	590.	69.	447.
1983	3.	0.	44.	4.	40.	117.	0.	12.	0.	152.	0.	0.	27.	616.	15.	462.
1984	6.	1.	49.	6.	43.	178.	0.	18.	0.	173.	0.	0.	70.	686.	36.	498.
1985	4.	1.	52.	4.	48.	121.	0.	12.	0.	166.	0.	0.	22.	709.	10.	509.
1986	7.	1.	58.	7.	51.	214.	0.	21.	0.	176.	0.	0.	101.	809.	43.	552.
1987	5.	1.	62.	5.	57.	155.	0.	16.	0.	170.	0.	0.	51.	861.	20.	571.
1988	6.	1.	67.	6.	61.	189.	0.	19.	0.	168.	0.	0.	83.	944.	29.	600.
1989	5.	0.	72.	6.	66.	192.	0.	19.	0.	167.	0.	0.	86.	1030.	27.	628.
1990	5.	1.	76.	5.	71.	472.	0.	47.	0.	217.	0.	0.	311.	1341.	90.	718.
1991	3.	0.	79.	4.	75.	313.	0.	31.	0.	237.	0.	0.	158.	1500.	42.	760.
1992	5.	1.	83.	10.	73.	731.	0.	73.	0.	324.	0.	0.	489.	1989.	117.	877.
1993	1.	0.	84.	0.	78.	421.	0.	42.	0.	353.	0.	0.	195.	2184.	42.	919.
1994	3.	1.	86.	9.	77.	613.	0.	61.	0.	418.	0.	0.	334.	2518.	66.	985.
1995	5.	4.	87.	8.	79.	533.	0.	53.	0.	468.	0.	0.	236.	2754.	43.	1028.
1996	0.	3.	90.	10.	80.	655.	0.	66.	0.	534.	0.	0.	312.	3066.	51.	1079.
1997	4.	3.	91.	5.	86.	324.	0.	32.	0.	513.	0.	0.	25.	3091.	4.	1083.
1998	7.	4.	94.	10.	84.	643.	0.	64.	0.	560.	0.	0.	287.	3378.	39.	1122.
1999	6.	4.	96.	29.	67.	1885.	0.	188.	0.	725.	0.	0.	1319.	4698.	162.	1284.
2000	6.	4.	98.	6.	92.	396.	0.	40.	0.	721.	0.	0.	-19.	4679.	-2.	1282.
2001	0.	0.	98.	0.	98.	0.	0.	0.	0.	634.	0.	0.	-329.	4350.	-33.	1248.
2002	0.	0.	98.	0.	98.	0.	0.	0.	0.	557.	0.	0.	-290.	4060.	-27.	1221.
2003	0.	0.	98.	0.	96.	0.	0.	0.	0.	464.	0.	0.	-241.	3819.	-20.	1201.
2004	0.	0.	98.	1.	97.	70.	0.	7.	0.	428.	0.	0.	-159.	3659.	-12.	1189.
2005	0.	0.	98.	4.	94.	285.	0.	28.	0.	377.	0.	0.	61.	3720.	4.	1193.
2006	0.	0.	98.	10.	88.	723.	0.	72.	0.	211.	0.	0.	542.	4262.	34.	1227.
2007	0.	0.	98.	6.	92.	441.	0.	44.	0.	217.	0.	0.	284.	4545.	16.	1244.
2008	0.	0.	98.	9.	89.	671.	0.	67.	0.	313.	0.	0.	441.	4987.	23.	1267.
2009	0.	0.	98.	8.	90.	606.	0.	61.	0.	400.	0.	0.	338.	5324.	16.	1283.
2010	0.	0.	98.	10.	88.	769.	0.	77.	0.	509.	0.	0.	427.	5752.	18.	1301.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 1
USER GROUP: AIR CARRIER
AIRCRAFT TYPE: PISTON
REGION(S): ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	0.	4.	40.	0.	40.	0.	0.	0.	0.	88.	0.	0.	-46.	-46.	-42.	-42.
1979	0.	2.	38.	0.	38.	0.	0.	0.	0.	73.	0.	0.	-38.	-84.	-32.	-73.
1980	0.	4.	34.	0.	34.	0.	0.	0.	0.	58.	0.	0.	-30.	-114.	-23.	-96.
1981	0.	4.	30.	0.	30.	0.	0.	0.	0.	47.	0.	0.	-24.	-139.	-17.	-113.
1982	0.	3.	27.	0.	27.	0.	0.	0.	0.	32.	0.	0.	-16.	-155.	-10.	-123.
1983	0.	1.	26.	0.	26.	0.	0.	0.	0.	16.	0.	0.	-8.	-163.	-5.	-128.
1984	0.	2.	24.	0.	24.	0.	0.	0.	0.	0.	0.	0.	0.	-163.	0.	-128.
1985	0.	1.	23.	0.	23.	0.	0.	0.	0.	0.	0.	0.	0.	-163.	0.	-128.
1986	0.	1.	22.	3.	19.	92.	0.	9.	0.	13.	0.	0.	76.	-88.	32.	-95.
1987	0.	1.	21.	3.	18.	93.	0.	9.	0.	26.	0.	0.	70.	-18.	27.	-68.
1988	0.	2.	19.	1.	18.	32.	0.	3.	0.	31.	0.	0.	12.	-5.	4.	-64.
1989	0.	3.	16.	1.	15.	32.	0.	3.	0.	36.	0.	0.	10.	5.	3.	-61.
1990	0.	1.	15.	3.	12.	283.	0.	28.	0.	76.	0.	0.	215.	220.	62.	2.
1991	0.	3.	12.	1.	11.	78.	0.	8.	0.	87.	0.	0.	25.	245.	7.	8.
1992	0.	3.	9.	0.	9.	0.	0.	0.	0.	87.	0.	0.	-45.	200.	-11.	-3.
1993	0.	0.	9.	0.	9.	0.	0.	0.	0.	74.	0.	0.	-38.	162.	-8.	-11.
1994	0.	1.	8.	0.	8.	0.	0.	0.	0.	61.	0.	0.	-32.	130.	-6.	-17.
1995	0.	0.	8.	0.	8.	0.	0.	0.	0.	56.	0.	0.	-29.	101.	-5.	-23.
1996	0.	1.	7.	0.	7.	0.	0.	0.	0.	52.	0.	0.	-27.	74.	-4.	-27.
1997	0.	0.	7.	0.	7.	0.	0.	0.	0.	11.	0.	0.	-6.	68.	-1.	-28.
1998	0.	1.	6.	0.	6.	0.	0.	0.	0.	0.	0.	0.	0.	68.	0.	-28.
1999	0.	1.	5.	1.	4.	45.	0.	6.	0.	9.	0.	0.	54.	122.	7.	-21.
2000	0.	1.	4.	0.	4.	0.	0.	0.	0.	9.	0.	0.	-5.	117.	-1.	-22.
2001	0.	0.	4.	0.	4.	0.	0.	0.	0.	9.	0.	0.	-5.	112.	-0.	-22.
2002	0.	0.	4.	0.	4.	0.	0.	0.	0.	9.	0.	0.	-5.	107.	-0.	-23.
2003	0.	0.	4.	0.	4.	0.	0.	0.	0.	9.	0.	0.	-5.	103.	-0.	-23.
2004	0.	0.	4.	2.	2.	140.	0.	14.	0.	29.	0.	0.	111.	214.	8.	-15.
2005	0.	0.	4.	1.	3.	71.	0.	7.	0.	40.	0.	0.	44.	257.	3.	-12.
2006	0.	0.	4.	0.	4.	0.	0.	0.	0.	30.	0.	0.	-16.	241.	-1.	-13.
2007	0.	0.	4.	0.	4.	0.	0.	0.	0.	30.	0.	0.	-16.	226.	-1.	-13.
2008	0.	0.	4.	0.	4.	0.	0.	0.	0.	30.	0.	0.	-16.	210.	-1.	-14.
2009	0.	0.	4.	0.	4.	0.	0.	0.	0.	30.	0.	0.	-16.	194.	-1.	-15.
2010	0.	0.	4.	0.	4.	0.	0.	0.	0.	30.	0.	0.	-16.	179.	-1.	-16.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 1
USER GROUP: AIR TAXI
AIRCRAFT TYPE: 1-2 ENG. JET
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR CUST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	7.	1.	71.	8.	63.	225.	0.	23.	0.	159.	0.	0.	120.	120.	109.	109.
1979	6.	2.	77.	9.	68.	256.	0.	26.	0.	177.	0.	0.	138.	258.	114.	223.
1980	7.	1.	83.	10.	73.	286.	0.	29.	0.	199.	0.	0.	154.	412.	116.	339.
1981	11.	3.	91.	12.	79.	346.	0.	35.	0.	226.	0.	0.	194.	606.	133.	472.
1982	12.	2.	101.	14.	87.	406.	0.	41.	0.	264.	0.	0.	228.	835.	142.	613.
1983	7.	1.	107.	11.	96.	322.	0.	32.	0.	287.	0.	0.	141.	975.	79.	693.
1984	9.	3.	113.	11.	102.	326.	0.	33.	0.	310.	0.	0.	133.	1108.	68.	761.
1985	12.	3.	122.	14.	108.	422.	0.	42.	0.	338.	0.	0.	204.	1312.	95.	856.
1986	16.	3.	135.	18.	117.	551.	0.	55.	0.	380.	0.	0.	298.	1610.	126.	982.
1987	11.	3.	143.	13.	130.	404.	0.	40.	0.	397.	0.	0.	157.	1767.	61.	1043.
1988	20.	3.	160.	25.	137.	725.	0.	73.	0.	451.	0.	0.	418.	2185.	147.	1190.
1989	16.	3.	173.	19.	155.	577.	0.	58.	0.	475.	0.	0.	272.	2457.	87.	1276.
1990	18.	4.	187.	20.	167.	1886.	0.	189.	0.	699.	0.	0.	1334.	3791.	386.	1663.
1991	19.	3.	203.	22.	181.	1720.	0.	172.	0.	898.	0.	0.	1081.	4872.	285.	1947.
1992	20.	4.	219.	24.	195.	1753.	0.	175.	0.	1048.	0.	0.	1012.	5885.	242.	2190.
1993	20.	3.	236.	25.	210.	1822.	0.	182.	0.	1270.	0.	0.	980.	6864.	213.	2403.
1994	23.	5.	254.	26.	226.	1906.	0.	191.	0.	1484.	0.	0.	944.	7808.	187.	2590.
1995	22.	5.	271.	29.	242.	1932.	0.	193.	0.	1657.	0.	0.	877.	8685.	158.	2747.
1996	25.	5.	291.	34.	257.	2228.	0.	223.	0.	1892.	0.	0.	1021.	9706.	167.	2914.
1997	25.	5.	311.	31.	280.	2008.	0.	201.	0.	1910.	0.	0.	814.	10520.	121.	3035.
1998	28.	7.	332.	32.	300.	2056.	0.	206.	0.	1958.	0.	0.	832.	11353.	112.	3148.
1999	28.	6.	354.	108.	246.	7019.	0.	702.	0.	2710.	0.	0.	4908.	16260.	603.	3751.
2000	28.	6.	376.	28.	348.	1848.	0.	185.	0.	2714.	0.	0.	252.	16512.	28.	3779.
2001	0.	0.	376.	0.	376.	0.	0.	0.	0.	2441.	0.	0.	-1270.	15243.	-129.	3650.
2002	0.	0.	376.	0.	376.	0.	0.	0.	0.	2100.	0.	0.	-1126.	14117.	-104.	3546.
2003	0.	0.	376.	0.	376.	0.	0.	0.	0.	1847.	0.	0.	-961.	13156.	-81.	3465.
2004	0.	0.	376.	14.	362.	982.	0.	98.	0.	1701.	0.	0.	-0.	13156.	-0.	3465.
2005	0.	0.	376.	22.	354.	1567.	0.	157.	0.	1631.	0.	0.	565.	13718.	39.	3504.
2006	0.	0.	376.	24.	352.	1736.	0.	174.	0.	876.	0.	0.	1107.	14825.	70.	3574.
2007	0.	0.	376.	20.	350.	1910.	0.	191.	0.	885.	0.	0.	1259.	16084.	72.	3646.
2008	0.	0.	376.	28.	348.	2089.	0.	209.	0.	1183.	0.	0.	1264.	17348.	66.	3712.
2009	0.	0.	376.	29.	347.	2197.	0.	220.	0.	1497.	0.	0.	1198.	18546.	57.	3769.
2010	0.	0.	376.	34.	342.	2015.	0.	201.	0.	1871.	0.	0.	1381.	19927.	59.	3828.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 1
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: 3-4 ENG. JET
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	6.	0.	77.	8.	69.	225.	0.	23.	0.	170.	0.	0.	114.	114.	104.	104.
1979	8.	3.	82.	9.	73.	256.	0.	26.	0.	188.	0.	0.	132.	246.	109.	213.
1980	8.	0.	90.	12.	78.	343.	0.	34.	0.	215.	0.	0.	197.	443.	148.	361.
1981	11.	3.	98.	12.	86.	346.	0.	35.	0.	242.	0.	0.	186.	629.	127.	488.
1982	14.	3.	109.	16.	93.	464.	0.	46.	0.	285.	0.	0.	270.	899.	168.	656.
1983	6.	0.	115.	11.	104.	322.	0.	32.	0.	307.	0.	0.	130.	1029.	73.	729.
1984	6.	3.	120.	10.	110.	297.	0.	30.	0.	322.	0.	0.	100.	1129.	51.	780.
1985	14.	3.	131.	17.	114.	512.	0.	51.	0.	363.	0.	0.	272.	1401.	127.	907.
1986	17.	5.	145.	19.	126.	581.	0.	58.	0.	409.	0.	0.	310.	1711.	132.	1039.
1987	11.	3.	153.	14.	139.	435.	0.	43.	0.	422.	0.	0.	172.	1883.	66.	1105.
1988	23.	3.	173.	26.	147.	820.	0.	82.	0.	490.	0.	0.	483.	2366.	169.	1274.
1989	17.	3.	187.	20.	167.	641.	0.	64.	0.	515.	0.	0.	309.	2674.	98.	1372.
1990	20.	6.	201.	21.	180.	1980.	0.	198.	0.	752.	0.	0.	1391.	4066.	403.	1775.
1991	20.	3.	218.	23.	195.	1798.	0.	180.	0.	967.	0.	0.	1115.	5181.	294.	2069.
1992	23.	6.	235.	25.	210.	1827.	0.	183.	0.	1154.	0.	0.	1044.	6224.	250.	2319.
1993	20.	3.	252.	20.	226.	1822.	0.	182.	0.	1332.	0.	0.	948.	7172.	206.	2525.
1994	25.	6.	271.	31.	240.	2110.	0.	211.	0.	1571.	0.	0.	1082.	8254.	214.	2739.
1995	23.	6.	288.	29.	259.	1932.	0.	193.	0.	1730.	0.	0.	839.	9093.	151.	2890.
1996	25.	6.	307.	35.	272.	2295.	0.	229.	0.	1966.	0.	0.	1042.	10135.	170.	3060.
1997	28.	6.	329.	35.	296.	2138.	0.	214.	0.	1988.	0.	0.	890.	11025.	132.	3193.
1998	31.	8.	352.	35.	319.	2120.	0.	212.	0.	2035.	0.	0.	850.	11875.	115.	3308.
1999	28.	6.	374.	118.	256.	7669.	0.	767.	0.	2869.	0.	0.	5410.	17285.	665.	3972.
2000	25.	6.	396.	28.	368.	1848.	0.	185.	0.	2873.	0.	0.	169.	17454.	19.	3991.
2001	0.	0.	396.	0.	396.	0.	0.	0.	0.	2571.	0.	0.	-1337.	16117.	-136.	3855.
2002	0.	0.	396.	0.	396.	0.	0.	0.	0.	2295.	0.	0.	-1194.	14923.	-110.	3745.
2003	0.	0.	396.	0.	396.	0.	0.	0.	0.	1968.	0.	0.	-1023.	13900.	-86.	3659.
2004	0.	0.	396.	15.	381.	1052.	0.	105.	0.	1813.	0.	0.	5.	13905.	0.	3660.
2005	0.	0.	396.	23.	373.	1639.	0.	164.	0.	1744.	0.	0.	568.	14472.	39.	3699.
2006	0.	0.	396.	25.	371.	1804.	0.	181.	0.	907.	0.	0.	1156.	15629.	73.	3772.
2007	0.	0.	396.	26.	370.	1910.	0.	191.	0.	916.	0.	0.	1243.	16871.	71.	3843.
2008	0.	0.	396.	31.	365.	2312.	0.	231.	0.	1246.	0.	0.	1433.	18305.	75.	3918.
2009	0.	0.	396.	29.	367.	2197.	0.	220.	0.	1560.	0.	0.	1166.	19470.	55.	3973.
2010	0.	0.	396.	35.	361.	2692.	0.	269.	0.	1944.	0.	0.	1412.	20882.	61.	4034.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 1
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: 1-2 ENG. JET
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	155.	27.	1492.	170.	1310.	4957.	0.	496.	0.	3388.	0.	0.	2699.	2699.	2454.	2454.
1979	155.	29.	1618.	193.	1425.	5479.	0.	548.	0.	3773.	0.	0.	2969.	5669.	2454.	4909.
1980	181.	32.	1767.	205.	1542.	5866.	0.	587.	0.	4196.	0.	0.	3098.	8767.	2327.	7235.
1981	229.	37.	1939.	270.	1663.	7956.	0.	796.	0.	4896.	0.	0.	4615.	13382.	3152.	10386.
1982	235.	38.	2136.	287.	1849.	8332.	0.	833.	0.	5631.	0.	0.	4571.	17952.	2838.	13226.
1983	170.	41.	2265.	225.	2040.	6585.	0.	659.	0.	6094.	0.	0.	2758.	20710.	1557.	14782.
1984	177.	47.	2395.	230.	2165.	6824.	0.	682.	0.	6571.	0.	0.	2724.	23435.	1398.	16180.
1985	245.	49.	2591.	300.	2291.	9038.	0.	904.	0.	7154.	0.	0.	4414.	27848.	2059.	18239.
1986	313.	50.	2854.	371.	2483.	11549.	0.	1155.	0.	7993.	0.	0.	6058.	33906.	2569.	20809.
1987	253.	57.	3050.	307.	2743.	9536.	0.	954.	0.	8517.	0.	0.	4154.	38060.	1601.	22410.
1988	437.	62.	3425.	490.	2935.	15456.	0.	1546.	0.	9589.	0.	0.	8924.	46984.	3128.	25538.
1989	329.	67.	3687.	380.	3307.	12171.	0.	1217.	0.	10137.	0.	0.	5683.	52667.	1811.	27349.
1990	303.	75.	3975.	410.	3565.	38664.	0.	3866.	0.	14720.	0.	0.	27143.	79810.	7862.	35211.
1991	366.	79.	4282.	432.	3850.	33766.	0.	3377.	0.	18569.	0.	0.	20734.	100544.	5460.	40671.
1992	414.	86.	4610.	504.	4109.	34823.	0.	3482.	0.	22538.	0.	0.	21421.	121966.	5128.	45799.
1993	439.	92.	4957.	540.	4417.	37848.	0.	3785.	0.	26324.	0.	0.	20375.	142341.	4434.	50233.
1994	469.	99.	5327.	575.	4752.	39139.	0.	3914.	0.	30552.	0.	0.	19338.	161678.	3826.	54059.
1995	470.	107.	5690.	639.	5081.	42563.	0.	4256.	0.	34425.	0.	0.	20406.	182084.	3570.	57729.
1996	501.	114.	6077.	674.	5403.	44165.	0.	4416.	0.	38395.	0.	0.	19469.	201553.	3183.	60913.
1997	527.	122.	6482.	639.	5852.	40811.	0.	4081.	0.	39302.	0.	0.	16293.	217846.	2422.	63334.
1998	572.	131.	6923.	671.	6252.	43116.	0.	4312.	0.	40638.	0.	0.	17673.	235519.	2388.	65723.
1999	600.	137.	7386.	2311.	5075.	150187.	0.	15019.	0.	56832.	0.	0.	105616.	341134.	12974.	78697.
2000	600.	137.	7849.	600.	7249.	39595.	0.	3959.	0.	57082.	0.	0.	5952.	347087.	665.	79362.
2001	0.	0.	7849.	0.	7849.	0.	0.	0.	0.	51491.	0.	0.	-26775.	320312.	-2716.	76643.
2002	0.	0.	7849.	0.	7849.	0.	0.	0.	0.	45410.	0.	0.	-23613.	296698.	-2179.	74464.
2003	0.	0.	7849.	0.	7849.	0.	0.	0.	0.	39101.	0.	0.	-20333.	276366.	-1706.	72758.
2004	0.	0.	7849.	273.	7576.	19153.	0.	1915.	0.	36007.	0.	0.	-1486.	274880.	-113.	72645.
2005	0.	0.	7849.	432.	7417.	30776.	0.	3078.	0.	34245.	0.	0.	9892.	284772.	686.	73331.
2006	0.	0.	7849.	504.	7345.	36460.	0.	3646.	0.	17998.	0.	0.	23455.	308227.	1479.	74809.
2007	0.	0.	7849.	540.	7309.	39067.	0.	3907.	0.	18008.	0.	0.	26336.	334563.	1509.	76318.
2008	0.	0.	7849.	575.	7274.	42890.	0.	4289.	0.	24135.	0.	0.	26050.	360613.	1357.	77676.
2009	0.	0.	7849.	639.	7210.	48399.	0.	4840.	0.	31049.	0.	0.	27413.	388026.	1298.	78974.
2010	0.	0.	7849.	674.	7175.	51837.	0.	5184.	0.	38455.	0.	0.	26657.	414683.	1148.	80122.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 1
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: 3-4 ENG. JET
REGION(S): CONUS OCEANIC

YEAR	NEW AC	RET AC	NET POP	PCHGS PURCH	PCHGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	4.	2.	74.	14.	142.	486.	0.	45.	0.	394.	0.	0.	197.	197.	179.	179.
1979	7.	2.	83.	16.	150.	512.	0.	51.	0.	417.	0.	0.	244.	441.	202.	381.
1980	6.	2.	87.	16.	158.	515.	0.	51.	0.	440.	0.	0.	235.	676.	176.	557.
1981	8.	1.	94.	24.	164.	776.	0.	78.	0.	499.	0.	0.	439.	1115.	300.	857.
1982	6.	3.	99.	20.	178.	649.	0.	65.	0.	530.	0.	0.	308.	1423.	191.	1048.
1983	5.	2.	103.	18.	188.	587.	0.	59.	0.	561.	0.	0.	237.	1660.	134.	1182.
1984	5.	1.	107.	19.	196.	592.	0.	59.	0.	582.	0.	0.	230.	1890.	118.	1300.
1985	9.	3.	113.	28.	202.	795.	0.	80.	0.	632.	0.	0.	387.	2277.	161.	1460.
1986	7.	2.	118.	22.	214.	735.	0.	73.	0.	664.	0.	0.	316.	2593.	134.	1614.
1987	9.	3.	124.	24.	224.	808.	0.	81.	0.	706.	0.	0.	360.	2953.	139.	1753.
1988	12.	3.	133.	30.	236.	1020.	0.	102.	0.	741.	0.	0.	532.	3485.	187.	1940.
1989	10.	2.	141.	30.	252.	1030.	0.	103.	0.	795.	0.	0.	513.	3999.	163.	2104.
1990	13.	4.	150.	19.	270.	1415.	0.	141.	0.	913.	0.	0.	798.	4797.	231.	2335.
1991	12.	2.	160.	17.	271.	1329.	0.	133.	0.	1019.	0.	0.	666.	5463.	175.	2510.
1992	14.	4.	170.	17.	274.	1242.	0.	124.	0.	1083.	0.	0.	555.	6018.	133.	2643.
1993	14.	4.	180.	18.	275.	1282.	0.	128.	0.	1158.	0.	0.	533.	6551.	116.	2759.
1994	15.	4.	191.	19.	277.	1293.	0.	129.	0.	1227.	0.	0.	526.	7077.	104.	2863.
1995	16.	3.	204.	25.	272.	1665.	0.	167.	0.	1319.	0.	0.	813.	7890.	146.	3009.
1996	16.	4.	216.	22.	277.	1442.	0.	144.	0.	1378.	0.	0.	581.	8470.	95.	3104.
1997	17.	4.	229.	22.	281.	1425.	0.	143.	0.	1380.	0.	0.	565.	9036.	84.	3188.
1998	18.	5.	242.	22.	285.	1414.	0.	141.	0.	1392.	0.	0.	549.	9584.	74.	3262.
1999	19.	4.	257.	60.	177.	5199.	0.	520.	0.	1957.	0.	0.	3661.	13246.	450.	3712.
2000	19.	4.	272.	19.	253.	1254.	0.	125.	0.	1956.	0.	0.	111.	13357.	12.	3725.
2001	0.	0.	272.	0.	272.	0.	0.	0.	0.	1771.	0.	0.	-921.	12436.	-94.	3631.
2002	0.	0.	272.	0.	272.	0.	0.	0.	0.	1533.	0.	0.	-797.	11639.	-74.	3557.
2003	0.	0.	272.	0.	272.	0.	0.	0.	0.	1327.	0.	0.	-690.	10948.	-58.	3500.
2004	0.	0.	272.	11.	261.	772.	0.	77.	0.	1234.	0.	0.	53.	11001.	4.	3504.
2005	0.	0.	272.	17.	255.	1211.	0.	121.	0.	1205.	0.	0.	483.	11485.	32.	3536.
2006	0.	0.	272.	17.	255.	1230.	0.	123.	0.	938.	0.	0.	775.	12260.	49.	3585.
2007	0.	0.	272.	16.	254.	1322.	0.	132.	0.	848.	0.	0.	853.	13093.	49.	3633.
2008	0.	0.	272.	19.	253.	1417.	0.	142.	0.	850.	0.	0.	833.	13926.	43.	3677.
2009	0.	0.	272.	25.	247.	1894.	0.	189.	0.	1121.	0.	0.	1121.	15047.	53.	3730.
2010	0.	0.	272.	22.	250.	1692.	0.	169.	0.	1363.	0.	0.	814.	15862.	35.	3765.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 1
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: 1-2 ENG. JET
REGION(S): CONUS OCEANIC

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	3.	1.	48.	6.	88.	255.	0.	25.	0.	245.	0.	0.	102.	102.	93.	93.
1979	4.	1.	51.	10.	92.	320.	0.	32.	0.	257.	0.	0.	155.	257.	128.	221.
1980	4.	1.	54.	10.	98.	322.	0.	32.	0.	269.	0.	0.	150.	406.	113.	333.
1981	5.	2.	57.	12.	102.	388.	0.	39.	0.	290.	0.	0.	198.	605.	135.	469.
1982	4.	1.	60.	12.	108.	389.	0.	39.	0.	311.	0.	0.	189.	794.	117.	586.
1983	4.	2.	62.	12.	112.	392.	0.	39.	0.	331.	0.	0.	180.	974.	102.	688.
1984	3.	1.	64.	10.	115.	329.	0.	33.	0.	342.	0.	0.	118.	1092.	61.	748.
1985	5.	2.	67.	12.	122.	398.	0.	40.	0.	362.	0.	0.	169.	1261.	79.	827.
1986	4.	2.	69.	12.	126.	401.	0.	40.	0.	374.	0.	0.	166.	1428.	70.	898.
1987	5.	2.	72.	14.	130.	472.	0.	47.	0.	395.	0.	0.	219.	1646.	84.	982.
1988	7.	2.	77.	16.	136.	612.	0.	61.	0.	427.	0.	0.	328.	1975.	115.	1097.
1989	6.	2.	81.	16.	140.	549.	0.	55.	0.	450.	0.	0.	260.	2235.	83.	1180.
1990	7.	2.	86.	9.	154.	849.	0.	85.	0.	516.	0.	0.	496.	2731.	144.	1324.
1991	7.	2.	91.	9.	159.	703.	0.	70.	0.	569.	0.	0.	337.	3068.	89.	1412.
1992	7.	2.	96.	9.	164.	658.	0.	66.	0.	606.	0.	0.	277.	3345.	66.	1479.
1993	8.	2.	102.	11.	169.	771.	0.	77.	0.	659.	0.	0.	351.	3696.	76.	1555.
1994	8.	2.	108.	11.	176.	749.	0.	75.	0.	699.	0.	0.	311.	4006.	61.	1617.
1995	9.	3.	114.	12.	185.	799.	0.	80.	0.	725.	0.	0.	342.	4348.	62.	1678.
1996	9.	2.	121.	13.	195.	852.	0.	85.	0.	769.	0.	0.	367.	4715.	60.	1738.
1997	9.	3.	127.	12.	206.	777.	0.	78.	0.	758.	0.	0.	305.	5021.	45.	1783.
1998	8.	2.	135.	13.	218.	835.	0.	84.	0.	777.	0.	0.	348.	5368.	47.	1830.
1999	0.	3.	142.	43.	99.	2794.	0.	279.	0.	1083.	0.	0.	1952.	7320.	240.	2070.
2000	0.	3.	149.	10.	139.	660.	0.	66.	0.	1067.	0.	0.	39.	7360.	4.	2075.
2001	0.	0.	149.	0.	149.	0.	0.	0.	0.	960.	0.	0.	-499.	6860.	-51.	2024.
2002	0.	0.	149.	0.	149.	0.	0.	0.	0.	846.	0.	0.	-440.	6421.	-41.	1983.
2003	0.	0.	149.	0.	149.	0.	0.	0.	0.	724.	0.	0.	-376.	6044.	-32.	1952.
2004	0.	0.	149.	6.	143.	421.	0.	42.	0.	673.	0.	0.	29.	6073.	2.	1954.
2005	0.	0.	149.	9.	140.	641.	0.	64.	0.	645.	0.	0.	242.	6315.	17.	1971.
2006	0.	0.	149.	9.	140.	651.	0.	65.	0.	339.	0.	0.	410.	6724.	26.	1997.
2007	0.	0.	149.	11.	138.	808.	0.	81.	0.	360.	0.	0.	540.	7264.	31.	2027.
2008	0.	0.	149.	11.	138.	820.	0.	82.	0.	477.	0.	0.	490.	7755.	26.	2053.
2009	0.	0.	149.	12.	137.	909.	0.	91.	0.	607.	0.	0.	502.	8257.	24.	2077.
2010	0.	0.	149.	13.	136.	1000.	0.	100.	0.	750.	0.	0.	510.	8767.	22.	2099.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 1
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: PISTON
REGION(S): CONUS OCEANIC

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	2.	1.	32.	4.	60.	127.	0.	15.	0.	157.	0.	0.	33.	33.	30.	30.
1979	2.	0.	34.	6.	60.	256.	0.	26.	0.	169.	0.	0.	143.	176.	118.	149.
1980	3.	1.	36.	6.	66.	193.	0.	19.	0.	179.	0.	0.	81.	256.	61.	209.
1981	3.	1.	39.	10.	68.	323.	0.	32.	0.	200.	0.	0.	187.	443.	128.	336.
1982	2.	0.	41.	6.	74.	260.	0.	26.	0.	219.	0.	0.	120.	563.	74.	411.
1983	2.	1.	42.	6.	78.	196.	0.	20.	0.	221.	0.	0.	61.	624.	35.	445.
1984	3.	1.	44.	10.	78.	329.	0.	33.	0.	241.	0.	0.	171.	795.	88.	533.
1985	4.	1.	47.	10.	84.	331.	0.	33.	0.	270.	0.	0.	158.	953.	74.	607.
1986	2.	1.	49.	6.	88.	267.	0.	27.	0.	271.	0.	0.	99.	1053.	42.	649.
1987	4.	1.	51.	10.	92.	337.	0.	34.	0.	292.	0.	0.	151.	1204.	58.	707.
1988	3.	1.	53.	10.	96.	340.	0.	34.	0.	294.	0.	0.	153.	1357.	54.	761.
1989	4.	1.	56.	10.	102.	343.	0.	34.	0.	306.	0.	0.	150.	1507.	48.	808.
1990	5.	1.	60.	7.	106.	660.	0.	66.	0.	372.	0.	0.	400.	1907.	116.	924.
1991	4.	1.	63.	6.	107.	469.	0.	47.	0.	393.	0.	0.	218.	2125.	57.	982.
1992	6.	2.	67.	6.	109.	438.	0.	44.	0.	408.	0.	0.	182.	2308.	44.	1026.
1993	5.	1.	71.	8.	107.	561.	0.	56.	0.	450.	0.	0.	271.	2578.	59.	1084.
1994	5.	1.	75.	7.	109.	476.	0.	48.	0.	470.	0.	0.	185.	2763.	37.	1121.
1995	6.	2.	79.	9.	106.	599.	0.	60.	0.	507.	0.	0.	276.	3039.	50.	1171.
1996	6.	1.	84.	9.	107.	590.	0.	59.	0.	542.	0.	0.	249.	3288.	41.	1211.
1997	6.	2.	88.	7.	110.	453.	0.	45.	0.	512.	0.	0.	142.	3429.	21.	1232.
1998	8.	2.	93.	11.	107.	707.	0.	71.	0.	546.	0.	0.	352.	3781.	48.	1280.
1999	7.	2.	99.	29.	70.	1885.	0.	188.	0.	753.	0.	0.	1305.	5086.	160.	1440.
2000	7.	2.	104.	7.	97.	462.	0.	46.	0.	739.	0.	0.	31.	5118.	4.	1444.
2001	0.	0.	104.	0.	104.	0.	0.	0.	0.	671.	0.	0.	-349.	4769.	-35.	1408.
2002	0.	0.	104.	0.	104.	0.	0.	0.	0.	585.	0.	0.	-304.	4464.	-28.	1380.
2003	0.	0.	104.	0.	104.	0.	0.	0.	0.	501.	0.	0.	-261.	4204.	-22.	1358.
2004	0.	0.	104.	5.	99.	351.	0.	35.	0.	436.	0.	0.	63.	4267.	5.	1363.
2005	0.	0.	104.	6.	98.	427.	0.	43.	0.	446.	0.	0.	153.	4419.	11.	1374.
2006	0.	0.	104.	6.	98.	434.	0.	43.	0.	239.	0.	0.	266.	4686.	17.	1390.
2007	0.	0.	104.	8.	96.	588.	0.	59.	0.	257.	0.	0.	395.	5081.	23.	1413.
2008	0.	0.	104.	7.	97.	522.	0.	52.	0.	332.	0.	0.	297.	5378.	15.	1429.
2009	0.	0.	104.	9.	95.	682.	0.	68.	0.	429.	0.	0.	390.	5769.	18.	1447.
2010	0.	0.	104.	9.	95.	692.	0.	69.	0.	528.	0.	0.	348.	6117.	15.	1462.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 1
USER GROUP: PER-OTHER
AIRCRAFT TYPE: 1-2 ENG. JET
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	16.	4.	147.	17.	130.	479.	0.	0.	0.	0.	0.	0.	479.	479.	435.	435.
1979	15.	2.	160.	19.	141.	539.	0.	0.	0.	0.	0.	0.	539.	1018.	446.	881.
1980	16.	4.	172.	20.	152.	572.	0.	0.	0.	0.	0.	0.	572.	1591.	430.	1311.
1981	24.	4.	192.	28.	164.	807.	0.	0.	0.	0.	0.	0.	807.	2398.	551.	1862.
1982	22.	4.	210.	27.	183.	784.	0.	0.	0.	0.	0.	0.	784.	3181.	487.	2349.
1983	16.	4.	222.	22.	200.	644.	0.	0.	0.	0.	0.	0.	644.	3825.	363.	2712.
1984	18.	5.	235.	22.	213.	653.	0.	0.	0.	0.	0.	0.	653.	4478.	335.	3047.
1985	26.	5.	256.	32.	224.	964.	0.	0.	0.	0.	0.	0.	964.	5442.	450.	3497.
1986	29.	4.	281.	35.	246.	1071.	0.	0.	0.	0.	0.	0.	1071.	6513.	454.	3951.
1987	25.	5.	302.	32.	270.	994.	0.	0.	0.	0.	0.	0.	994.	7507.	383.	4334.
1988	44.	7.	339.	49.	290.	1546.	0.	0.	0.	0.	0.	0.	1546.	9052.	542.	4876.
1989	33.	5.	367.	40.	327.	1281.	0.	0.	0.	0.	0.	0.	1281.	10334.	408.	5284.
1990	36.	9.	394.	39.	355.	3678.	0.	0.	0.	0.	0.	0.	3678.	14011.	1065.	6350.
1991	39.	7.	425.	43.	386.	3361.	0.	0.	0.	0.	0.	0.	3361.	17372.	885.	7235.
1992	40.	7.	458.	50.	408.	3653.	0.	0.	0.	0.	0.	0.	3653.	21025.	875.	8109.
1993	46.	11.	493.	54.	439.	3785.	0.	0.	0.	0.	0.	0.	3785.	24810.	824.	8933.
1994	45.	9.	530.	57.	473.	3880.	0.	0.	0.	0.	0.	0.	3880.	28690.	768.	9701.
1995	47.	11.	566.	64.	502.	4263.	0.	0.	0.	0.	0.	0.	4263.	32953.	767.	10467.
1996	49.	11.	604.	65.	539.	4259.	0.	0.	0.	0.	0.	0.	4259.	37212.	696.	11164.
1997	53.	13.	644.	62.	592.	4016.	0.	0.	0.	0.	0.	0.	4016.	41228.	597.	11761.
1998	57.	13.	688.	69.	622.	4241.	0.	0.	0.	0.	0.	0.	4241.	45469.	573.	12334.
1999	58.	13.	733.	233.	500.	15142.	0.	0.	0.	0.	0.	0.	15142.	60612.	1860.	14194.
2000	58.	13.	778.	58.	720.	3827.	0.	0.	0.	0.	0.	0.	3827.	64439.	427.	14621.
2001	0.	0.	778.	0.	778.	0.	0.	0.	0.	0.	0.	0.	0.	64439.	0.	14621.
2002	0.	0.	778.	0.	778.	0.	0.	0.	0.	0.	0.	0.	0.	64439.	0.	14621.
2003	0.	0.	778.	0.	778.	0.	0.	0.	0.	0.	0.	0.	0.	64439.	0.	14621.
2004	0.	0.	778.	26.	752.	1824.	0.	0.	0.	0.	0.	0.	1824.	66263.	139.	14761.
2005	0.	0.	778.	43.	735.	3063.	0.	0.	0.	0.	0.	0.	3063.	69327.	212.	14973.
2006	0.	0.	778.	50.	728.	3617.	0.	0.	0.	0.	0.	0.	3617.	72944.	228.	15201.
2007	0.	0.	778.	54.	724.	3967.	0.	0.	0.	0.	0.	0.	3967.	76910.	227.	15428.
2008	0.	0.	778.	57.	721.	4252.	0.	0.	0.	0.	0.	0.	4252.	81162.	222.	15650.
2009	0.	0.	778.	64.	714.	4847.	0.	0.	0.	0.	0.	0.	4847.	86009.	230.	15879.
2010	0.	0.	778.	65.	713.	4999.	0.	0.	0.	0.	0.	0.	4999.	91009.	215.	16095.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 1
USER GROUP: PER-OTHER
AIRCRAFT TYPE: 3-4 ENG. JET
REGION(S): CONUS OCEANIC

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	2.	1.	32.	4.	60.	127.	0.	0.	0.	0.	0.	0.	127.	127.	116.	116.
1979	2.	0.	34.	8.	60.	256.	0.	0.	0.	0.	0.	0.	256.	384.	212.	328.
1980	3.	1.	36.	6.	66.	193.	0.	0.	0.	0.	0.	0.	193.	577.	145.	473.
1981	3.	1.	38.	8.	68.	259.	0.	0.	0.	0.	0.	0.	259.	835.	177.	649.
1982	2.	0.	40.	8.	72.	260.	0.	0.	0.	0.	0.	0.	260.	1095.	161.	810.
1983	2.	1.	41.	6.	76.	196.	0.	0.	0.	0.	0.	0.	196.	1291.	111.	921.
1984	2.	1.	42.	8.	76.	263.	0.	0.	0.	0.	0.	0.	263.	1554.	135.	1056.
1985	3.	1.	44.	8.	80.	265.	0.	0.	0.	0.	0.	0.	265.	1819.	124.	1180.
1986	3.	1.	46.	10.	82.	334.	0.	0.	0.	0.	0.	0.	334.	2153.	142.	1321.
1987	3.	1.	48.	8.	88.	269.	0.	0.	0.	0.	0.	0.	269.	2422.	104.	1425.
1988	4.	1.	51.	12.	90.	408.	0.	0.	0.	0.	0.	0.	408.	2830.	143.	1568.
1989	4.	1.	54.	10.	98.	343.	0.	0.	0.	0.	0.	0.	343.	3173.	109.	1677.
1990	4.	1.	57.	6.	102.	566.	0.	0.	0.	0.	0.	0.	566.	3739.	164.	1841.
1991	5.	1.	61.	7.	102.	547.	0.	0.	0.	0.	0.	0.	547.	4286.	144.	1985.
1992	4.	1.	64.	5.	105.	365.	0.	0.	0.	0.	0.	0.	365.	4652.	87.	2073.
1993	5.	1.	68.	8.	102.	561.	0.	0.	0.	0.	0.	0.	561.	5212.	122.	2195.
1994	6.	2.	72.	7.	104.	476.	0.	0.	0.	0.	0.	0.	476.	5689.	94.	2289.
1995	5.	1.	76.	9.	103.	533.	0.	0.	0.	0.	0.	0.	533.	6222.	96.	2385.
1996	6.	2.	80.	8.	103.	524.	0.	0.	0.	0.	0.	0.	524.	6746.	86.	2471.
1997	6.	1.	85.	8.	105.	518.	0.	0.	0.	0.	0.	0.	518.	7264.	77.	2548.
1998	7.	2.	90.	9.	105.	578.	0.	0.	0.	0.	0.	0.	578.	7842.	78.	2626.
1999	7.	2.	95.	24.	66.	1885.	0.	0.	0.	0.	0.	0.	1885.	9727.	232.	2857.
2000	7.	2.	100.	7.	93.	462.	0.	0.	0.	0.	0.	0.	462.	10189.	52.	2909.
2001	0.	0.	100.	0.	100.	0.	0.	0.	0.	0.	0.	0.	0.	10189.	0.	2909.
2002	0.	0.	100.	0.	100.	0.	0.	0.	0.	0.	0.	0.	0.	10189.	0.	2909.
2003	0.	0.	100.	0.	100.	0.	0.	0.	0.	0.	0.	0.	0.	10189.	0.	2909.
2004	0.	0.	100.	4.	96.	281.	0.	0.	0.	0.	0.	0.	281.	10470.	21.	2930.
2005	0.	0.	100.	7.	93.	499.	0.	0.	0.	0.	0.	0.	499.	10968.	35.	2965.
2006	0.	0.	100.	5.	95.	362.	0.	0.	0.	0.	0.	0.	362.	11330.	23.	2988.
2007	0.	0.	100.	8.	92.	588.	0.	0.	0.	0.	0.	0.	588.	11918.	34.	3021.
2008	0.	0.	100.	7.	93.	522.	0.	0.	0.	0.	0.	0.	522.	12440.	27.	3049.
2009	0.	0.	100.	8.	92.	606.	0.	0.	0.	0.	0.	0.	606.	13046.	29.	3077.
2010	0.	0.	100.	8.	92.	615.	0.	0.	0.	0.	0.	0.	615.	13661.	26.	3104.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 1
USER GROUP: PER-OTHER
AIRCRAFT TYPE: 3-4 ENG. JET
REGION(S): ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	5.	1.	36.	5.	31.	141.	0.	0.	0.	0.	0.	0.	141.	141.	128.	128.
1979	4.	0.	40.	6.	34.	170.	0.	0.	0.	0.	0.	0.	170.	311.	141.	269.
1980	4.	1.	43.	4.	39.	114.	0.	0.	0.	0.	0.	0.	114.	426.	86.	355.
1981	6.	1.	48.	7.	41.	202.	0.	0.	0.	0.	0.	0.	202.	627.	138.	493.
1982	7.	1.	54.	9.	45.	261.	0.	0.	0.	0.	0.	0.	261.	889.	162.	655.
1983	5.	1.	58.	6.	52.	176.	0.	0.	0.	0.	0.	0.	176.	1064.	99.	754.
1984	4.	1.	61.	5.	56.	148.	0.	0.	0.	0.	0.	0.	148.	1213.	76.	830.
1985	7.	1.	67.	9.	58.	271.	0.	0.	0.	0.	0.	0.	271.	1484.	126.	957.
1986	10.	2.	75.	10.	65.	306.	0.	0.	0.	0.	0.	0.	306.	1790.	130.	1086.
1987	7.	1.	81.	9.	72.	280.	0.	0.	0.	0.	0.	0.	280.	2069.	108.	1194.
1988	13.	2.	92.	13.	79.	410.	0.	0.	0.	0.	0.	0.	410.	2479.	144.	1338.
1989	10.	2.	100.	11.	89.	352.	0.	0.	0.	0.	0.	0.	352.	2832.	112.	1450.
1990	11.	2.	109.	12.	97.	1132.	0.	0.	0.	0.	0.	0.	1132.	3963.	328.	1778.
1991	12.	2.	119.	13.	106.	1016.	0.	0.	0.	0.	0.	0.	1016.	4979.	268.	2045.
1992	13.	2.	130.	14.	114.	1169.	0.	0.	0.	0.	0.	0.	1169.	6148.	280.	2325.
1993	14.	3.	141.	17.	124.	1192.	0.	0.	0.	0.	0.	0.	1192.	7340.	259.	2585.
1994	16.	3.	154.	17.	137.	1157.	0.	0.	0.	0.	0.	0.	1157.	8497.	229.	2814.
1995	15.	3.	166.	19.	147.	1266.	0.	0.	0.	0.	0.	0.	1266.	9763.	228.	3041.
1996	15.	3.	179.	22.	157.	1442.	0.	0.	0.	0.	0.	0.	1442.	11204.	236.	3277.
1997	16.	4.	193.	20.	173.	1296.	0.	0.	0.	0.	0.	0.	1296.	12500.	193.	3469.
1998	20.	4.	209.	21.	186.	1349.	0.	0.	0.	0.	0.	0.	1349.	13849.	182.	3652.
1999	20.	4.	225.	66.	157.	4419.	0.	0.	0.	0.	0.	0.	4419.	18268.	543.	4195.
2000	20.	4.	241.	20.	221.	1320.	0.	0.	0.	0.	0.	0.	1320.	19588.	147.	4342.
2001	0.	0.	241.	0.	241.	0.	0.	0.	0.	0.	0.	0.	0.	19588.	0.	4342.
2002	0.	0.	241.	0.	241.	0.	0.	0.	0.	0.	0.	0.	0.	19588.	0.	4342.
2003	0.	0.	241.	0.	241.	0.	0.	0.	0.	0.	0.	0.	0.	19588.	0.	4342.
2004	0.	0.	241.	6.	233.	561.	0.	0.	0.	0.	0.	0.	561.	20149.	43.	4385.
2005	0.	0.	241.	13.	228.	926.	0.	0.	0.	0.	0.	0.	926.	21075.	64.	4449.
2006	0.	0.	241.	16.	225.	1157.	0.	0.	0.	0.	0.	0.	1157.	22233.	73.	4522.
2007	0.	0.	241.	17.	224.	1249.	0.	0.	0.	0.	0.	0.	1249.	23482.	72.	4594.
2008	0.	0.	241.	17.	224.	1268.	0.	0.	0.	0.	0.	0.	1268.	24750.	66.	4660.
2009	0.	0.	241.	14.	222.	1439.	0.	0.	0.	0.	0.	0.	1439.	26189.	68.	4728.
2010	0.	0.	241.	22.	219.	1692.	0.	0.	0.	0.	0.	0.	1692.	27881.	73.	4801.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 2
USER GROUP: AIR CARRIER
AIRCRAFT TYPE: 3-4 ENG. JET
REGION(S): CONUS OCEANIC

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	3.	2.	69.	6.	132.	191.	0.	19.	0.	331.	0.	0.	-0.	-0.	-0.	-0.
1979	2.	3.	68.	0.	130.	192.	0.	19.	0.	317.	0.	0.	8.	7.	6.	6.
1980	3.	2.	69.	8.	130.	257.	0.	26.	0.	303.	0.	0.	74.	82.	56.	62.
1981	2.	2.	69.	10.	128.	323.	0.	32.	0.	297.	0.	0.	136.	218.	93.	155.
1982	3.	3.	69.	8.	130.	260.	0.	26.	0.	282.	0.	0.	87.	305.	54.	209.
1983	4.	4.	69.	10.	128.	326.	0.	33.	0.	275.	0.	0.	150.	456.	85.	294.
1984	7.	7.	69.	14.	124.	440.	0.	46.	0.	287.	0.	0.	265.	721.	136.	430.
1985	9.	8.	70.	18.	122.	597.	0.	60.	0.	345.	0.	0.	357.	1078.	167.	597.
1986	9.	10.	69.	18.	120.	601.	0.	60.	0.	404.	0.	0.	331.	1409.	140.	737.
1987	7.	7.	69.	14.	124.	472.	0.	47.	0.	434.	0.	0.	199.	1608.	77.	814.
1988	6.	6.	69.	12.	126.	408.	0.	41.	0.	446.	0.	0.	135.	1743.	47.	861.
1989	4.	2.	71.	8.	134.	275.	0.	27.	0.	448.	0.	0.	14.	1757.	4.	866.
1990	3.	1.	73.	3.	140.	253.	0.	26.	0.	442.	0.	0.	25.	1782.	7.	873.
1991	4.	2.	75.	8.	135.	469.	0.	47.	0.	443.	0.	0.	192.	1973.	50.	923.
1992	6.	3.	78.	8.	135.	438.	0.	44.	0.	421.	0.	0.	176.	2149.	42.	965.
1993	3.	1.	80.	5.	135.	350.	0.	35.	0.	385.	0.	0.	115.	2264.	25.	991.
1994	3.	2.	81.	5.	132.	340.	0.	34.	0.	366.	0.	0.	116.	2380.	23.	1013.
1995	5.	2.	84.	6.	127.	533.	0.	53.	0.	384.	0.	0.	280.	2660.	50.	1064.
1996	5.	3.	86.	6.	127.	393.	0.	39.	0.	401.	0.	0.	145.	2805.	24.	1088.
1997	6.	3.	89.	8.	123.	518.	0.	52.	0.	435.	0.	0.	240.	3046.	36.	1123.
1998	5.	3.	91.	20.	95.	1285.	0.	129.	0.	551.	0.	0.	870.	3916.	118.	1241.
1999	6.	3.	94.	27.	67.	1755.	0.	175.	0.	739.	0.	0.	1195.	5110.	147.	1388.
2000	6.	3.	97.	6.	91.	396.	0.	40.	0.	746.	0.	0.	-31.	5079.	-4.	1384.
2001	0.	0.	97.	0.	97.	0.	0.	0.	0.	697.	0.	0.	-363.	4716.	-37.	1347.
2002	0.	0.	97.	0.	97.	0.	0.	0.	0.	621.	0.	0.	-323.	4394.	-30.	1317.
2003	0.	0.	97.	0.	97.	0.	0.	0.	0.	565.	0.	0.	-294.	4100.	-25.	1293.
2004	0.	0.	97.	0.	97.	0.	0.	0.	0.	491.	0.	0.	-255.	3845.	-19.	1273.
2005	0.	0.	97.	6.	91.	427.	0.	43.	0.	368.	0.	0.	193.	4038.	13.	1287.
2006	0.	0.	97.	6.	91.	434.	0.	43.	0.	180.	0.	0.	297.	4335.	19.	1305.
2007	0.	0.	97.	5.	92.	367.	0.	37.	0.	176.	0.	0.	239.	4574.	14.	1319.
2008	0.	0.	97.	5.	92.	373.	0.	37.	0.	229.	0.	0.	217.	4791.	11.	1330.
2009	0.	0.	97.	8.	89.	606.	0.	61.	0.	315.	0.	0.	381.	5172.	18.	1349.
2010	0.	0.	97.	6.	91.	461.	0.	46.	0.	381.	0.	0.	217.	5389.	9.	1358.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 2
USER GROUP: AIR CARRIER
AIRCRAFT TYPE: 3-4 ENG. JET
REGION(S): CONUS ALASKA OCEANIC

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	0.	1.	14.	0.	28.	0.	0.	0.	0.	69.	0.	0.	-36.	-36.	-33.	-33.
1979	0.	0.	14.	0.	28.	0.	0.	0.	0.	61.	0.	0.	-32.	-68.	-26.	-59.
1980	1.	1.	14.	2.	29.	64.	0.	6.	0.	53.	0.	0.	30.	-38.	23.	-36.
1981	0.	0.	14.	2.	26.	65.	0.	6.	0.	54.	0.	0.	30.	-7.	21.	-16.
1982	0.	0.	14.	2.	26.	65.	0.	6.	0.	54.	0.	0.	30.	23.	19.	3.
1983	0.	1.	13.	0.	25.	0.	0.	0.	0.	37.	0.	0.	-19.	4.	-11.	-8.
1984	1.	1.	13.	2.	29.	66.	0.	7.	0.	37.	0.	0.	40.	43.	20.	13.
1985	1.	1.	13.	2.	24.	66.	0.	7.	0.	47.	0.	0.	35.	79.	17.	29.
1986	1.	2.	12.	2.	22.	67.	0.	7.	0.	56.	0.	0.	31.	110.	13.	42.
1987	1.	1.	12.	2.	22.	67.	0.	7.	0.	57.	0.	0.	31.	141.	12.	54.
1988	1.	1.	12.	2.	22.	68.	0.	7.	0.	57.	0.	0.	32.	173.	11.	65.
1989	1.	1.	12.	2.	22.	69.	0.	7.	0.	58.	0.	0.	32.	204.	10.	76.
1990	1.	0.	13.	3.	20.	283.	0.	28.	0.	98.	0.	0.	204.	408.	59.	135.
1991	0.	0.	13.	1.	21.	78.	0.	8.	0.	100.	0.	0.	18.	427.	5.	139.
1992	1.	0.	14.	1.	22.	73.	0.	7.	0.	101.	0.	0.	13.	440.	3.	143.
1993	0.	0.	14.	0.	23.	0.	0.	0.	0.	91.	0.	0.	-47.	393.	-10.	132.
1994	1.	0.	15.	2.	21.	136.	0.	14.	0.	101.	0.	0.	70.	463.	14.	146.
1995	1.	0.	16.	2.	21.	133.	0.	13.	0.	110.	0.	0.	63.	525.	11.	157.
1996	1.	1.	16.	1.	21.	66.	0.	7.	0.	110.	0.	0.	2.	527.	0.	158.
1997	1.	1.	16.	1.	20.	65.	0.	6.	0.	79.	0.	0.	17.	544.	3.	160.
1998	1.	0.	17.	2.	19.	129.	0.	13.	0.	86.	0.	0.	71.	615.	10.	170.
1999	1.	0.	18.	5.	13.	325.	0.	32.	0.	122.	0.	0.	229.	844.	28.	198.
2000	1.	0.	19.	1.	18.	66.	0.	7.	0.	131.	0.	0.	-9.	836.	-1.	197.
2001	0.	0.	19.	0.	19.	0.	0.	0.	0.	112.	0.	0.	-58.	777.	-6.	191.
2002	0.	0.	19.	0.	19.	0.	0.	0.	0.	93.	0.	0.	-48.	729.	-4.	187.
2003	0.	0.	19.	0.	19.	0.	0.	0.	0.	83.	0.	0.	-43.	686.	-4.	183.
2004	0.	0.	19.	5.	16.	210.	0.	21.	0.	104.	0.	0.	135.	821.	10.	193.
2005	0.	0.	19.	1.	18.	71.	0.	7.	0.	96.	0.	0.	14.	835.	1.	194.
2006	0.	0.	19.	1.	18.	72.	0.	7.	0.	60.	0.	0.	34.	869.	2.	196.
2007	0.	0.	19.	0.	19.	0.	0.	0.	0.	51.	0.	0.	-26.	843.	-2.	195.
2008	0.	0.	19.	2.	17.	149.	0.	15.	0.	72.	0.	0.	97.	940.	5.	200.
2009	0.	0.	19.	2.	17.	151.	0.	15.	0.	94.	0.	0.	88.	1027.	4.	204.
2010	0.	0.	19.	1.	18.	77.	0.	8.	0.	105.	0.	0.	15.	1042.	1.	205.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 2
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: 3-4 ENG. JET
REGION(S): CONUS OCEANIC

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	1.	0.	16.	4.	28.	127.	0.	13.	0.	88.	0.	0.	69.	69.	63.	63.
1979	1.	0.	17.	2.	32.	64.	0.	6.	0.	58.	0.	0.	12.	81.	10.	72.
1980	1.	0.	18.	4.	32.	129.	0.	13.	0.	90.	0.	0.	69.	150.	52.	124.
1981	2.	1.	19.	4.	34.	129.	0.	13.	0.	100.	0.	0.	65.	214.	44.	168.
1982	1.	0.	20.	4.	36.	130.	0.	13.	0.	110.	0.	0.	60.	274.	37.	206.
1983	1.	0.	21.	4.	38.	131.	0.	13.	0.	110.	0.	0.	60.	334.	34.	240.
1984	1.	1.	21.	2.	40.	66.	0.	7.	0.	111.	0.	0.	2.	336.	1.	240.
1985	1.	0.	22.	4.	40.	133.	0.	13.	0.	112.	0.	0.	61.	397.	29.	269.
1986	1.	0.	23.	4.	42.	134.	0.	13.	0.	121.	0.	0.	57.	454.	24.	293.
1987	1.	0.	24.	6.	42.	202.	0.	20.	0.	132.	0.	0.	113.	568.	44.	337.
1988	2.	0.	26.	6.	46.	204.	0.	20.	0.	143.	0.	0.	109.	677.	38.	375.
1989	2.	1.	27.	4.	50.	137.	0.	14.	0.	144.	0.	0.	49.	726.	16.	391.
1990	2.	0.	29.	4.	50.	377.	0.	38.	0.	179.	0.	0.	246.	972.	71.	462.
1991	2.	1.	30.	2.	52.	156.	0.	16.	0.	192.	0.	0.	41.	1013.	11.	473.
1992	2.	0.	32.	4.	50.	292.	0.	29.	0.	215.	0.	0.	151.	1165.	36.	509.
1993	2.	0.	34.	3.	52.	210.	0.	21.	0.	226.	0.	0.	72.	1237.	16.	525.
1994	3.	1.	36.	4.	51.	272.	0.	27.	0.	236.	0.	0.	123.	1359.	24.	549.
1995	3.	1.	38.	4.	51.	266.	0.	27.	0.	245.	0.	0.	113.	1472.	20.	569.
1996	3.	1.	40.	4.	51.	262.	0.	26.	0.	262.	0.	0.	99.	1571.	16.	586.
1997	3.	1.	42.	4.	51.	259.	0.	26.	0.	246.	0.	0.	106.	1677.	16.	601.
1998	3.	0.	45.	4.	53.	257.	0.	26.	0.	260.	0.	0.	96.	1773.	13.	614.
1999	4.	2.	47.	14.	33.	910.	0.	91.	0.	348.	0.	0.	638.	2411.	79.	693.
2000	4.	2.	49.	4.	45.	264.	0.	26.	0.	356.	0.	0.	53.	2463.	6.	698.
2001	0.	0.	49.	0.	49.	0.	0.	0.	0.	317.	0.	0.	-165.	2298.	-17.	682.
2002	0.	0.	49.	0.	49.	0.	0.	0.	0.	279.	0.	0.	-145.	2153.	-13.	668.
2003	0.	0.	49.	0.	49.	0.	0.	0.	0.	241.	0.	0.	-126.	2028.	-11.	658.
2004	0.	0.	49.	2.	47.	140.	0.	14.	0.	224.	0.	0.	10.	2037.	1.	659.
2005	0.	0.	49.	2.	47.	142.	0.	14.	0.	208.	0.	0.	20.	2057.	1.	660.
2006	0.	0.	49.	4.	45.	289.	0.	29.	0.	119.	0.	0.	198.	2256.	13.	672.
2007	0.	0.	49.	3.	46.	220.	0.	22.	0.	113.	0.	0.	139.	2395.	8.	680.
2008	0.	0.	49.	4.	45.	298.	0.	30.	0.	156.	0.	0.	187.	2583.	10.	690.
2009	0.	0.	49.	4.	45.	303.	0.	30.	0.	199.	0.	0.	169.	2752.	8.	698.
2010	0.	0.	49.	4.	45.	308.	0.	31.	0.	243.	0.	0.	150.	2902.	6.	705.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 2
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: 1-2 ENG. JET
REGION(S): CONUS OCEANIC

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	3.	1.	46.	6.	88.	255.	0.	25.	0.	245.	0.	0.	102.	102.	93.	93.
1979	4.	1.	51.	10.	92.	320.	0.	32.	0.	257.	0.	0.	155.	257.	128.	221.
1980	3.	1.	53.	8.	98.	257.	0.	26.	0.	260.	0.	0.	97.	353.	73.	293.
1981	4.	0.	57.	14.	100.	452.	0.	45.	0.	290.	0.	0.	256.	610.	175.	468.
1982	4.	1.	60.	12.	108.	389.	0.	39.	0.	311.	0.	0.	189.	799.	117.	586.
1983	3.	1.	62.	12.	112.	392.	0.	39.	0.	331.	0.	0.	180.	979.	102.	687.
1984	2.	1.	63.	8.	118.	263.	0.	26.	0.	333.	0.	0.	64.	1043.	33.	720.
1985	4.	1.	66.	12.	120.	398.	0.	40.	0.	353.	0.	0.	174.	1217.	81.	801.
1986	3.	0.	69.	14.	124.	468.	0.	47.	0.	374.	0.	0.	226.	1443.	96.	897.
1987	4.	1.	72.	14.	130.	472.	0.	47.	0.	405.	0.	0.	214.	1657.	82.	980.
1988	6.	1.	77.	16.	136.	612.	0.	61.	0.	428.	0.	0.	328.	1985.	115.	1095.
1989	5.	1.	81.	10.	146.	549.	0.	55.	0.	450.	0.	0.	260.	2245.	83.	1178.
1990	6.	1.	86.	9.	154.	849.	0.	85.	0.	516.	0.	0.	496.	2741.	144.	1321.
1991	7.	2.	91.	9.	155.	703.	0.	70.	0.	579.	0.	0.	332.	3073.	87.	1409.
1992	6.	1.	96.	9.	156.	658.	0.	66.	0.	616.	0.	0.	272.	3345.	65.	1474.
1993	7.	2.	101.	10.	155.	701.	0.	70.	0.	649.	0.	0.	293.	3638.	64.	1538.
1994	8.	2.	107.	10.	157.	681.	0.	68.	0.	679.	0.	0.	260.	3898.	51.	1589.
1995	9.	2.	114.	14.	153.	933.	0.	93.	0.	725.	0.	0.	462.	4360.	83.	1672.
1996	8.	2.	120.	12.	155.	786.	0.	79.	0.	759.	0.	0.	313.	4674.	51.	1723.
1997	9.	2.	127.	13.	155.	842.	0.	84.	0.	758.	0.	0.	364.	5037.	54.	1777.
1998	10.	3.	134.	11.	160.	707.	0.	71.	0.	758.	0.	0.	242.	5279.	33.	1810.
1999	10.	2.	142.	45.	97.	2924.	0.	292.	0.	1082.	0.	0.	2069.	7349.	254.	2064.
2000	10.	2.	150.	10.	140.	660.	0.	66.	0.	1076.	0.	0.	34.	7383.	4.	2068.
2001	0.	0.	150.	0.	150.	0.	0.	0.	0.	979.	0.	0.	-509.	6874.	-52.	2017.
2002	0.	0.	150.	0.	150.	0.	0.	0.	0.	846.	0.	0.	-440.	6434.	-41.	1976.
2003	0.	0.	150.	0.	150.	0.	0.	0.	0.	733.	0.	0.	-381.	6053.	-32.	1944.
2004	0.	0.	150.	7.	143.	491.	0.	49.	0.	683.	0.	0.	87.	6140.	7.	1951.
2005	0.	0.	150.	9.	141.	641.	0.	64.	0.	674.	0.	0.	227.	6366.	16.	1966.
2006	0.	0.	150.	9.	141.	651.	0.	65.	0.	349.	0.	0.	404.	6771.	25.	1992.
2007	0.	0.	150.	10.	140.	735.	0.	73.	0.	360.	0.	0.	474.	7245.	27.	2019.
2008	0.	0.	150.	10.	140.	746.	0.	75.	0.	466.	0.	0.	429.	7674.	22.	2041.
2009	0.	0.	150.	14.	136.	1060.	0.	106.	0.	618.	0.	0.	633.	8307.	30.	2071.
2010	0.	0.	150.	12.	138.	923.	0.	92.	0.	750.	0.	0.	441.	8748.	19.	2090.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 3
USER GROUP: AIR CARRIER
AIRCRAFT TYPE: 3-4 ENG. JET
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	1.	2.	37.	1.	36.	28.	0.	3.	0.	77.	0.	0.	-15.	-15.	-13.	-13.
1979	1.	2.	36.	1.	35.	28.	0.	3.	0.	70.	0.	0.	-11.	-25.	-9.	-22.
1980	2.	2.	36.	2.	34.	57.	0.	6.	0.	67.	0.	0.	17.	-9.	13.	-10.
1981	1.	1.	36.	2.	34.	58.	0.	6.	0.	64.	0.	0.	19.	10.	13.	3.
1982	1.	2.	35.	1.	34.	29.	0.	3.	0.	56.	0.	0.	-3.	7.	-2.	1.
1983	2.	3.	34.	2.	32.	59.	0.	6.	0.	49.	0.	0.	27.	34.	15.	17.
1984	2.	3.	33.	2.	31.	59.	0.	6.	0.	45.	0.	0.	30.	64.	15.	32.
1985	4.	5.	32.	4.	28.	121.	0.	12.	0.	59.	0.	0.	78.	142.	36.	68.
1986	4.	6.	30.	4.	26.	122.	0.	12.	0.	72.	0.	0.	73.	215.	31.	99.
1987	3.	4.	29.	3.	26.	93.	0.	9.	0.	77.	0.	0.	44.	258.	17.	116.
1988	4.	4.	29.	4.	25.	126.	0.	13.	0.	87.	0.	0.	68.	327.	24.	140.
1989	2.	1.	30.	2.	28.	64.	0.	6.	0.	92.	0.	0.	10.	336.	3.	143.
1990	1.	1.	30.	1.	29.	94.	0.	9.	0.	97.	0.	0.	34.	371.	10.	153.
1991	2.	0.	32.	3.	29.	234.	0.	23.	0.	122.	0.	0.	148.	518.	39.	192.
1992	1.	1.	32.	1.	31.	73.	0.	7.	0.	115.	0.	0.	6.	524.	1.	193.
1993	1.	0.	33.	2.	31.	140.	0.	14.	0.	118.	0.	0.	65.	589.	14.	207.
1994	2.	0.	35.	4.	31.	272.	0.	27.	0.	144.	0.	0.	170.	759.	34.	241.
1995	2.	1.	36.	3.	33.	200.	0.	20.	0.	154.	0.	0.	100.	859.	18.	259.
1996	2.	0.	38.	3.	35.	197.	0.	20.	0.	173.	0.	0.	87.	946.	14.	273.
1997	3.	2.	39.	3.	36.	194.	0.	19.	0.	187.	0.	0.	78.	1024.	12.	285.
1998	3.	2.	40.	9.	31.	578.	0.	58.	0.	236.	0.	0.	398.	1421.	54.	338.
1999	3.	1.	42.	13.	29.	845.	0.	84.	0.	347.	0.	0.	580.	2001.	71.	410.
2000	3.	1.	44.	5.	41.	198.	0.	20.	0.	355.	0.	0.	-6.	1995.	-1.	409.
2001	0.	0.	44.	0.	44.	0.	0.	0.	0.	316.	0.	0.	-164.	1831.	-17.	392.
2002	0.	0.	44.	0.	44.	0.	0.	0.	0.	287.	0.	0.	-149.	1681.	-14.	379.
2003	0.	0.	44.	0.	44.	0.	0.	0.	0.	259.	0.	0.	-135.	1546.	-11.	367.
2004	0.	0.	44.	0.	44.	0.	0.	0.	0.	232.	0.	0.	-120.	1426.	-9.	358.
2005	0.	0.	44.	3.	41.	214.	0.	21.	0.	180.	0.	0.	99.	1525.	7.	365.
2006	0.	0.	43.	1.	43.	72.	0.	7.	0.	69.	0.	0.	29.	1554.	2.	367.
2007	0.	0.	44.	2.	42.	147.	0.	15.	0.	62.	0.	0.	100.	1654.	6.	372.
2008	0.	0.	44.	4.	40.	298.	0.	30.	0.	104.	0.	0.	214.	1868.	11.	384.
2009	0.	0.	44.	3.	41.	227.	0.	23.	0.	137.	0.	0.	133.	2002.	6.	390.
2010	0.	0.	44.	3.	41.	231.	0.	23.	0.	170.	0.	0.	119.	2121.	5.	395.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC IFR LEVEL 3
USER GROUP: AIR CARRIER
AIRCRAFT TYPE: 3-4 ENG. JET
REGION(S): CONUS OCEANIC

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	2.	3.	59.	4.	114.	127.	0.	13.	0.	287.	0.	0.	-35.	-35.	-32.	-32.
1979	2.	3.	58.	4.	112.	128.	0.	13.	0.	264.	0.	0.	-22.	-57.	-18.	-50.
1980	2.	2.	58.	4.	112.	129.	0.	13.	0.	240.	0.	0.	-9.	-66.	-7.	-57.
1981	2.	2.	58.	8.	108.	259.	0.	26.	0.	234.	0.	0.	111.	45.	76.	19.
1982	1.	3.	56.	4.	108.	130.	0.	13.	0.	209.	0.	0.	8.	54.	5.	24.
1983	3.	4.	55.	6.	104.	196.	0.	20.	0.	192.	0.	0.	76.	130.	43.	67.
1984	4.	6.	53.	8.	98.	263.	0.	26.	0.	176.	0.	0.	145.	275.	75.	142.
1985	6.	7.	52.	12.	92.	398.	0.	40.	0.	215.	0.	0.	246.	521.	115.	257.
1986	6.	8.	50.	12.	88.	401.	0.	40.	0.	253.	0.	0.	229.	750.	97.	354.
1987	6.	9.	47.	12.	82.	404.	0.	40.	0.	293.	0.	0.	212.	962.	82.	435.
1988	7.	6.	48.	14.	82.	476.	0.	48.	0.	324.	0.	0.	260.	1222.	91.	527.
1989	5.	4.	49.	10.	88.	343.	0.	34.	0.	354.	0.	0.	125.	1346.	40.	566.
1990	2.	1.	50.	2.	90.	189.	0.	19.	0.	353.	0.	0.	-14.	1332.	-4.	562.
1991	3.	0.	53.	3.	98.	234.	0.	23.	0.	349.	0.	0.	29.	1362.	8.	570.
1992	2.	0.	55.	3.	99.	219.	0.	22.	0.	324.	0.	0.	29.	1391.	7.	577.
1993	2.	1.	56.	3.	98.	210.	0.	21.	0.	297.	0.	0.	35.	1426.	8.	585.
1994	3.	0.	59.	5.	97.	340.	0.	34.	0.	287.	0.	0.	157.	1582.	31.	616.
1995	5.	2.	62.	7.	94.	466.	0.	47.	0.	286.	0.	0.	271.	1853.	49.	664.
1996	4.	2.	64.	4.	97.	262.	0.	26.	0.	274.	0.	0.	93.	1946.	15.	679.
1997	5.	2.	67.	6.	95.	389.	0.	39.	0.	303.	0.	0.	192.	2139.	29.	708.
1998	5.	2.	70.	19.	69.	1221.	0.	122.	0.	444.	0.	0.	868.	3007.	117.	825.
1999	4.	2.	72.	20.	52.	1300.	0.	130.	0.	598.	0.	0.	659.	3865.	105.	931.
2000	4.	2.	74.	4.	70.	264.	0.	26.	0.	606.	0.	0.	-78.	3788.	-9.	922.
2001	0.	0.	74.	0.	74.	0.	0.	0.	0.	557.	0.	0.	-290.	3498.	-29.	893.
2002	0.	0.	74.	0.	74.	0.	0.	0.	0.	491.	0.	0.	-255.	3243.	-24.	869.
2003	0.	0.	74.	0.	74.	0.	0.	0.	0.	453.	0.	0.	236.	3007.	-20.	849.
2004	0.	0.	74.	0.	74.	0.	0.	0.	0.	398.	0.	0.	207.	2800.	-16.	834.
2005	0.	0.	74.	3.	71.	214.	0.	21.	0.	254.	0.	0.	60.	2860.	4.	838.
2006	0.	0.	74.	3.	71.	217.	0.	22.	0.	99.	0.	0.	144.	3004.	9.	847.
2007	0.	0.	74.	3.	71.	220.	0.	22.	0.	93.	0.	0.	150.	3154.	9.	855.
2008	0.	0.	74.	5.	69.	373.	0.	37.	0.	146.	0.	0.	260.	3414.	14.	869.
2009	0.	0.	74.	7.	67.	530.	0.	53.	0.	222.	0.	0.	362.	3775.	17.	886.
2010	0.	0.	74.	4.	70.	308.	0.	31.	0.	266.	0.	0.	139.	3914.	6.	892.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC RNAV
USER GROUP: AIR TAXI
AIRCRAFT TYPE: 1-2 ENG. JET
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	1.	0.	10.	1.	9.	41.	0.	4.	0.	40.	0.	0.	17.	17.	15.	15.
1979	1.	0.	11.	2.	9.	83.	0.	8.	0.	46.	0.	0.	51.	67.	42.	57.
1980	1.	0.	12.	2.	10.	83.	0.	8.	0.	52.	0.	0.	48.	115.	36.	93.
1981	2.	0.	14.	2.	12.	83.	0.	8.	0.	59.	0.	0.	45.	159.	30.	123.
1982	1.	0.	15.	2.	13.	84.	0.	8.	0.	65.	0.	0.	41.	201.	26.	149.
1983	1.	0.	16.	2.	14.	84.	0.	8.	0.	71.	0.	0.	39.	239.	22.	171.
1984	1.	0.	17.	2.	15.	85.	0.	8.	0.	78.	0.	0.	36.	275.	19.	189.
1985	2.	0.	19.	3.	16.	129.	0.	13.	0.	90.	0.	0.	69.	344.	32.	221.
1986	2.	0.	21.	3.	18.	130.	0.	13.	0.	97.	0.	0.	67.	411.	28.	250.
1987	2.	0.	23.	3.	20.	132.	0.	13.	0.	104.	0.	0.	64.	476.	25.	274.
1988	3.	0.	26.	4.	22.	177.	0.	18.	0.	117.	0.	0.	99.	574.	35.	309.
1989	2.	0.	28.	3.	25.	134.	0.	13.	0.	125.	0.	0.	56.	631.	18.	327.
1990	2.	1.	29.	3.	26.	283.	0.	28.	0.	153.	0.	0.	175.	806.	51.	378.
1991	2.	1.	30.	3.	27.	234.	0.	23.	0.	174.	0.	0.	120.	926.	32.	409.
1992	3.	1.	32.	4.	28.	292.	0.	29.	0.	198.	0.	0.	160.	1086.	38.	448.
1993	3.	1.	34.	4.	30.	280.	0.	28.	0.	219.	0.	0.	138.	1225.	30.	478.
1994	3.	1.	36.	4.	32.	272.	0.	27.	0.	239.	0.	0.	121.	1346.	24.	502.
1995	3.	1.	38.	4.	34.	266.	0.	27.	0.	252.	0.	0.	109.	1454.	20.	521.
1996	3.	1.	40.	5.	35.	328.	0.	33.	0.	279.	0.	0.	150.	1604.	24.	546.
1997	3.	1.	42.	5.	37.	324.	0.	32.	0.	285.	0.	0.	143.	1747.	21.	567.
1998	4.	1.	45.	6.	39.	386.	0.	39.	0.	307.	0.	0.	187.	1934.	25.	592.
1999	4.	1.	48.	10.	38.	650.	0.	65.	0.	358.	0.	0.	399.	2333.	49.	641.
2000	4.	1.	51.	4.	47.	264.	0.	26.	0.	356.	0.	0.	53.	2386.	6.	647.
2001	0.	0.	51.	2.	49.	134.	0.	13.	0.	336.	0.	0.	-54.	2332.	-5.	642.
2002	0.	0.	51.	3.	48.	204.	0.	20.	0.	327.	0.	0.	14.	2345.	1.	643.
2003	0.	0.	51.	4.	47.	276.	0.	28.	0.	320.	0.	0.	82.	2428.	7.	650.
2004	0.	0.	51.	4.	47.	281.	0.	28.	0.	314.	0.	0.	90.	2517.	7.	657.
2005	0.	0.	51.	4.	47.	285.	0.	28.	0.	299.	0.	0.	101.	2618.	7.	664.
2006	0.	0.	51.	4.	47.	289.	0.	29.	0.	248.	0.	0.	132.	2750.	8.	672.
2007	0.	0.	51.	5.	46.	367.	0.	37.	0.	262.	0.	0.	194.	2944.	11.	683.
2008	0.	0.	51.	5.	46.	373.	0.	37.	0.	297.	0.	0.	181.	3126.	9.	693.
2009	0.	0.	51.	6.	45.	454.	0.	45.	0.	332.	0.	0.	236.	3362.	11.	704.
2010	0.	0.	51.	10.	41.	769.	0.	77.	0.	403.	0.	0.	483.	3845.	21.	725.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC RNAV
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: 3-4 ENG. JET
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	0.	0.	4.	0.	4.	0.	0.	0.	0.	17.	0.	0.	-9.	-9.	-8.	-8.
1979	1.	0.	5.	1.	4.	41.	0.	4.	0.	17.	0.	0.	28.	20.	23.	15.
1980	1.	0.	6.	2.	4.	83.	0.	8.	0.	29.	0.	0.	60.	79.	45.	60.
1981	1.	0.	7.	1.	6.	42.	0.	4.	0.	29.	0.	0.	22.	101.	15.	75.
1982	1.	0.	8.	1.	7.	42.	0.	4.	0.	35.	0.	0.	19.	121.	12.	87.
1983	0.	0.	8.	1.	7.	42.	0.	4.	0.	36.	0.	0.	19.	140.	11.	98.
1984	1.	0.	9.	1.	8.	42.	0.	4.	0.	42.	0.	0.	16.	156.	8.	107.
1985	1.	0.	10.	2.	8.	86.	0.	9.	0.	54.	0.	0.	49.	206.	23.	130.
1986	1.	0.	11.	1.	10.	43.	0.	4.	0.	54.	0.	0.	11.	216.	5.	134.
1987	1.	0.	12.	2.	10.	88.	0.	9.	0.	55.	0.	0.	50.	267.	19.	154.
1988	1.	0.	13.	1.	12.	44.	0.	4.	0.	55.	0.	0.	11.	278.	4.	158.
1989	1.	0.	14.	1.	13.	45.	0.	4.	0.	56.	0.	0.	11.	289.	4.	161.
1990	1.	0.	15.	2.	13.	189.	0.	19.	0.	77.	0.	0.	130.	419.	38.	199.
1991	1.	0.	16.	3.	13.	234.	0.	23.	0.	104.	0.	0.	157.	576.	41.	240.
1992	1.	0.	17.	2.	15.	146.	0.	15.	0.	113.	0.	0.	73.	649.	17.	258.
1993	1.	0.	18.	2.	16.	140.	0.	14.	0.	127.	0.	0.	60.	709.	13.	271.
1994	2.	0.	20.	3.	17.	204.	0.	20.	0.	143.	0.	0.	109.	818.	22.	292.
1995	1.	0.	21.	2.	19.	133.	0.	13.	0.	156.	0.	0.	39.	857.	7.	299.
1996	2.	0.	23.	4.	19.	262.	0.	26.	0.	187.	0.	0.	139.	996.	23.	322.
1997	2.	0.	25.	3.	22.	194.	0.	19.	0.	188.	0.	0.	77.	1073.	11.	333.
1998	2.	1.	26.	3.	23.	193.	0.	19.	0.	182.	0.	0.	79.	1152.	11.	344.
1999	2.	0.	28.	4.	24.	260.	0.	26.	0.	198.	0.	0.	131.	1283.	16.	360.
2000	2.	0.	30.	2.	28.	132.	0.	13.	0.	197.	0.	0.	16.	1299.	2.	362.
2001	0.	0.	30.	2.	28.	134.	0.	13.	0.	187.	0.	0.	23.	1323.	2.	364.
2002	0.	0.	30.	3.	27.	204.	0.	20.	0.	197.	0.	0.	81.	1404.	7.	372.
2003	0.	0.	30.	2.	28.	138.	0.	14.	0.	179.	0.	0.	-31.	1435.	3.	374.
2004	0.	0.	30.	2.	28.	140.	0.	14.	0.	172.	0.	0.	37.	1472.	3.	377.
2005	0.	0.	30.	3.	27.	214.	0.	21.	0.	175.	0.	0.	102.	1574.	7.	384.
2006	0.	0.	30.	2.	28.	145.	0.	14.	0.	158.	0.	0.	48.	1622.	3.	387.
2007	0.	0.	30.	4.	26.	294.	0.	29.	0.	181.	0.	0.	170.	1792.	10.	397.
2008	0.	0.	30.	3.	27.	224.	0.	22.	0.	194.	0.	0.	100.	1892.	5.	402.
2009	0.	0.	30.	3.	27.	227.	0.	23.	0.	197.	0.	0.	102.	1994.	5.	407.
2010	0.	0.	30.	4.	26.	308.	0.	31.	0.	222.	0.	0.	162.	2156.	7.	414.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC RNAV
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: 1-2 ENG. JET
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEFREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	18.	3.	173.	22.	151.	907.	0.	91.	0.	698.	0.	0.	453.	453.	412.	412.
1979	18.	4.	187.	25.	162.	1035.	0.	103.	0.	765.	0.	0.	534.	987.	441.	853.
1980	18.	3.	202.	27.	175.	1122.	0.	112.	0.	837.	0.	0.	575.	1562.	432.	1285.
1981	27.	4.	225.	36.	189.	1501.	0.	150.	0.	957.	0.	0.	854.	2416.	583.	1868.
1982	27.	5.	247.	36.	211.	1506.	0.	151.	0.	1076.	0.	0.	796.	3212.	494.	2362.
1983	20.	5.	262.	30.	232.	1262.	0.	126.	0.	1153.	0.	0.	536.	3748.	303.	2665.
1984	20.	5.	277.	31.	246.	1317.	0.	132.	0.	1236.	0.	0.	542.	4290.	278.	2943.
1985	28.	5.	300.	40.	260.	1718.	0.	172.	0.	1351.	0.	0.	843.	5133.	393.	3337.
1986	36.	6.	330.	47.	283.	2039.	0.	204.	0.	1495.	0.	0.	1058.	6191.	449.	3785.
1987	29.	7.	352.	40.	312.	1755.	0.	175.	0.	1585.	0.	0.	755.	6946.	291.	4076.
1988	50.	7.	395.	61.	334.	2705.	0.	271.	0.	1757.	0.	0.	1521.	8467.	533.	4610.
1989	38.	8.	425.	52.	373.	2331.	0.	233.	0.	1875.	0.	0.	1123.	9590.	358.	4967.
1990	42.	9.	458.	58.	400.	5470.	0.	547.	0.	2476.	0.	0.	3635.	13225.	1053.	6020.
1991	45.	9.	494.	63.	431.	4924.	0.	492.	0.	2992.	0.	0.	2876.	16101.	757.	6778.
1992	46.	10.	532.	74.	458.	5407.	0.	541.	0.	3519.	0.	0.	3036.	19137.	727.	7504.
1993	51.	10.	573.	77.	496.	5397.	0.	540.	0.	3998.	0.	0.	2778.	21915.	605.	8109.
1994	55.	11.	617.	74.	543.	5037.	0.	504.	0.	4467.	0.	0.	2210.	24126.	437.	8546.
1995	54.	12.	659.	73.	586.	4862.	0.	486.	0.	4775.	0.	0.	1893.	26019.	340.	8887.
1996	58.	13.	704.	85.	619.	5569.	0.	557.	0.	5238.	0.	0.	2289.	28307.	374.	9261.
1997	61.	14.	751.	94.	657.	6089.	0.	609.	0.	5327.	0.	0.	2711.	31018.	403.	9664.
1998	66.	15.	802.	91.	711.	5847.	0.	585.	0.	5458.	0.	0.	2424.	33442.	328.	9992.
1999	69.	16.	855.	166.	689.	10788.	0.	1079.	0.	6227.	0.	0.	6471.	39913.	795.	10787.
2000	69.	15.	908.	69.	839.	4553.	0.	455.	0.	6107.	0.	0.	923.	40836.	103.	10890.
2001	0.	0.	908.	42.	866.	2814.	0.	281.	0.	5789.	0.	0.	-477.	40358.	-48.	10841.
2002	0.	0.	908.	63.	845.	4287.	0.	429.	0.	5707.	0.	0.	890.	41249.	82.	10923.
2003	0.	0.	908.	74.	834.	5113.	0.	511.	0.	5642.	0.	0.	1668.	42917.	140.	11063.
2004	0.	0.	908.	77.	831.	5402.	0.	540.	0.	5544.	0.	0.	1979.	44896.	151.	11214.
2005	0.	0.	908.	74.	834.	5272.	0.	527.	0.	5461.	0.	0.	1905.	46801.	132.	11346.
2006	0.	0.	908.	73.	835.	5281.	0.	528.	0.	4675.	0.	0.	2322.	49123.	146.	11493.
2007	0.	0.	908.	85.	823.	6244.	0.	624.	0.	4916.	0.	0.	3063.	52186.	176.	11668.
2008	0.	0.	908.	94.	814.	7012.	0.	701.	0.	5516.	0.	0.	3442.	55628.	179.	11848.
2009	0.	0.	908.	91.	817.	6892.	0.	689.	0.	5888.	0.	0.	3141.	58770.	149.	11996.
2010	0.	0.	908.	166.	742.	12767.	0.	1277.	0.	6981.	0.	0.	7860.	66630.	338.	12335.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC RNAV
USER GROUP: EXEC-BUS.
AIRCRAFT TYPE: 1-2 ENG. JET
REGION(S): CONUS ALASKA

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	3.	1.	18.	3.	15.	124.	0.	12.	0.	74.	0.	0.	73.	73.	66.	66.
1979	1.	0.	19.	2.	17.	83.	0.	8.	0.	80.	0.	0.	33.	106.	27.	93.
1980	2.	0.	21.	3.	18.	125.	0.	12.	0.	87.	0.	0.	67.	172.	50.	143.
1981	3.	1.	23.	3.	20.	125.	0.	13.	0.	94.	0.	0.	64.	236.	44.	187.
1982	3.	0.	26.	5.	21.	209.	0.	21.	0.	118.	0.	0.	127.	363.	79.	266.
1983	3.	1.	28.	3.	25.	126.	0.	13.	0.	125.	0.	0.	49.	412.	27.	293.
1984	1.	0.	29.	3.	26.	127.	0.	13.	0.	131.	0.	0.	46.	458.	24.	317.
1985	4.	1.	32.	5.	27.	215.	0.	21.	0.	144.	0.	0.	118.	576.	55.	372.
1986	3.	0.	35.	4.	31.	174.	0.	17.	0.	157.	0.	0.	74.	651.	32.	404.
1987	4.	1.	38.	5.	33.	219.	0.	22.	0.	171.	0.	0.	109.	759.	42.	446.
1988	6.	1.	43.	7.	36.	310.	0.	31.	0.	197.	0.	0.	177.	936.	62.	508.
1989	5.	1.	47.	7.	40.	314.	0.	31.	0.	212.	0.	0.	172.	1108.	55.	562.
1990	5.	1.	51.	6.	45.	566.	0.	57.	0.	275.	0.	0.	366.	1474.	106.	668.
1991	5.	1.	55.	7.	48.	547.	0.	55.	0.	335.	0.	0.	318.	1793.	84.	752.
1992	6.	1.	60.	8.	52.	584.	0.	58.	0.	388.	0.	0.	324.	2117.	78.	830.
1993	6.	1.	65.	10.	55.	701.	0.	70.	0.	463.	0.	0.	390.	2507.	85.	915.
1994	6.	1.	70.	8.	62.	545.	0.	54.	0.	510.	0.	0.	225.	2732.	45.	959.
1995	7.	2.	75.	8.	67.	533.	0.	53.	0.	541.	0.	0.	198.	2930.	36.	995.
1996	7.	1.	81.	11.	70.	721.	0.	72.	0.	600.	0.	0.	337.	3267.	55.	1050.
1997	8.	2.	87.	10.	77.	648.	0.	65.	0.	611.	0.	0.	265.	3532.	39.	1089.
1998	9.	2.	94.	12.	82.	771.	0.	77.	0.	643.	0.	0.	359.	3892.	49.	1138.
1999	8.	1.	101.	21.	80.	1365.	0.	136.	0.	755.	0.	0.	836.	4728.	103.	1241.
2000	8.	1.	108.	8.	100.	528.	0.	53.	0.	730.	0.	0.	96.	4823.	11.	1251.
2001	0.	0.	108.	5.	103.	335.	0.	34.	0.	700.	0.	0.	-62.	4761.	-6.	1245.
2002	0.	0.	108.	7.	101.	476.	0.	48.	0.	692.	0.	0.	69.	4829.	6.	1251.
2003	0.	0.	108.	8.	100.	553.	0.	55.	0.	668.	0.	0.	150.	4980.	13.	1264.
2004	0.	0.	108.	10.	98.	702.	0.	70.	0.	676.	0.	0.	280.	5260.	21.	1285.
2005	0.	0.	108.	8.	100.	570.	0.	57.	0.	647.	0.	0.	177.	5436.	12.	1298.
2006	0.	0.	108.	8.	100.	579.	0.	58.	0.	535.	0.	0.	243.	5679.	15.	1313.
2007	0.	0.	108.	11.	97.	808.	0.	81.	0.	575.	0.	0.	428.	6108.	25.	1337.
2008	0.	0.	108.	10.	98.	746.	0.	75.	0.	633.	0.	0.	342.	6450.	18.	1355.
2009	0.	0.	108.	12.	96.	909.	0.	91.	0.	695.	0.	0.	457.	6906.	22.	1377.
2010	0.	0.	108.	21.	87.	1615.	0.	162.	0.	847.	0.	0.	1013.	7919.	44.	1421.

SHORT USER OUTPUT

AVIONICS CATEGORY: AC RNAV
USER GROUP: PER-OTHER
AIRCRAFT TYPE: 3-4 ENG. JET
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	4.	0.	54.	6.	48.	247.	0.	0.	0.	0.	0.	0.	247.	247.	225.	225.
1979	6.	2.	58.	8.	50.	331.	0.	0.	0.	0.	0.	0.	331.	579.	274.	499.
1980	6.	0.	64.	9.	55.	374.	0.	0.	0.	0.	0.	0.	374.	953.	281.	780.
1981	8.	2.	70.	11.	59.	459.	0.	0.	0.	0.	0.	0.	459.	1411.	313.	1093.
1982	10.	2.	78.	12.	66.	502.	0.	0.	0.	0.	0.	0.	502.	1913.	312.	1405.
1983	4.	0.	82.	9.	73.	378.	0.	0.	0.	0.	0.	0.	378.	2292.	214.	1618.
1984	6.	2.	86.	9.	77.	382.	0.	0.	0.	0.	0.	0.	382.	2674.	196.	1814.
1985	10.	2.	94.	13.	81.	558.	0.	0.	0.	0.	0.	0.	558.	3232.	260.	2075.
1986	12.	2.	104.	16.	88.	694.	0.	0.	0.	0.	0.	0.	694.	3926.	294.	2369.
1987	8.	2.	110.	11.	99.	483.	0.	0.	0.	0.	0.	0.	483.	4409.	186.	2555.
1988	16.	2.	124.	20.	104.	887.	0.	0.	0.	0.	0.	0.	887.	5296.	311.	2866.
1989	12.	2.	134.	16.	118.	717.	0.	0.	0.	0.	0.	0.	717.	6013.	229.	3095.
1990	14.	4.	144.	18.	126.	1697.	0.	0.	0.	0.	0.	0.	1697.	7711.	492.	3566.
1991	14.	2.	156.	21.	135.	1641.	0.	0.	0.	0.	0.	0.	1641.	9352.	432.	4019.
1992	16.	4.	168.	23.	145.	1680.	0.	0.	0.	0.	0.	0.	1680.	11033.	402.	4421.
1993	14.	2.	180.	24.	156.	1682.	0.	0.	0.	0.	0.	0.	1682.	12715.	366.	4787.
1994	18.	4.	194.	23.	171.	1566.	0.	0.	0.	0.	0.	0.	1566.	14280.	310.	5097.
1995	16.	4.	206.	21.	185.	1399.	0.	0.	0.	0.	0.	0.	1399.	15679.	252.	5348.
1996	15.	4.	220.	27.	193.	1769.	0.	0.	0.	0.	0.	0.	1769.	17448.	289.	5638.
1997	20.	4.	236.	32.	204.	2073.	0.	0.	0.	0.	0.	0.	2073.	19521.	308.	5946.
1998	22.	6.	252.	27.	225.	1735.	0.	0.	0.	0.	0.	0.	1735.	21256.	234.	6180.
1999	20.	4.	268.	52.	216.	3379.	0.	0.	0.	0.	0.	0.	3379.	24635.	415.	6595.
2000	20.	4.	284.	20.	264.	1320.	0.	0.	0.	0.	0.	0.	1320.	25955.	147.	6743.
2001	0.	0.	284.	14.	270.	938.	0.	0.	0.	0.	0.	0.	938.	26893.	95.	6838.
2002	0.	0.	284.	21.	263.	1429.	0.	0.	0.	0.	0.	0.	1429.	28322.	132.	6970.
2003	0.	0.	284.	23.	261.	1589.	0.	0.	0.	0.	0.	0.	1589.	29911.	133.	7103.
2004	0.	0.	284.	24.	260.	1684.	0.	0.	0.	0.	0.	0.	1684.	31595.	128.	7232.
2005	0.	0.	284.	23.	261.	1639.	0.	0.	0.	0.	0.	0.	1639.	33234.	114.	7345.
2006	0.	0.	284.	21.	263.	1519.	0.	0.	0.	0.	0.	0.	1519.	34753.	96.	7441.
2007	0.	0.	284.	27.	257.	1983.	0.	0.	0.	0.	0.	0.	1983.	36736.	114.	7555.
2008	0.	0.	284.	32.	252.	2387.	0.	0.	0.	0.	0.	0.	2387.	39123.	124.	7679.
2009	0.	0.	284.	27.	257.	2045.	0.	0.	0.	0.	0.	0.	2045.	41168.	97.	7776.
2010	0.	0.	284.	52.	232.	3999.	0.	0.	0.	0.	0.	0.	3999.	45167.	172.	7948.

Table A.7 (Continued)

AD-A058 228 SYSTEMS CONTROL INC PALO ALTO CALIF F/G 14/1
ECONOMIC REQUIREMENTS ANALYSIS OF CIVIL AIR NAVIGATION ALTERNAT--ETC(U)
APR 78 H L SOLOMON DOT-FA75WA-3662
UNCLASSIFIED FAA-ASP-78-3-VOL-2 NL

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AD
A058228



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DATE
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DDC

SHORT USER OUTPUT

AVIONICS CATEGORY: AC RNAV
USER GROUP: PER-OTHER
AIRCRAFT TYPE: 1-2 ENG. JET
REGION(S): CONUS

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	2.	0.	15.	3.	12.	124.	0.	0.	0.	0.	0.	0.	124.	124.	112.	112.
1979	1.	0.	16.	1.	15.	41.	0.	0.	0.	0.	0.	0.	41.	165.	34.	147.
1980	2.	0.	18.	3.	15.	125.	0.	0.	0.	0.	0.	0.	125.	290.	94.	240.
1981	2.	0.	20.	4.	16.	167.	0.	0.	0.	0.	0.	0.	167.	457.	114.	354.
1982	2.	0.	22.	3.	19.	126.	0.	0.	0.	0.	0.	0.	126.	582.	78.	432.
1983	2.	0.	24.	3.	21.	126.	0.	0.	0.	0.	0.	0.	126.	708.	71.	503.
1984	2.	1.	25.	2.	23.	85.	0.	0.	0.	0.	0.	0.	85.	793.	44.	547.
1985	2.	1.	26.	3.	23.	129.	0.	0.	0.	0.	0.	0.	129.	922.	60.	607.
1986	3.	0.	29.	4.	25.	174.	0.	0.	0.	0.	0.	0.	174.	1096.	74.	681.
1987	2.	1.	30.	2.	28.	88.	0.	0.	0.	0.	0.	0.	88.	1183.	34.	715.
1988	4.	1.	33.	5.	28.	222.	0.	0.	0.	0.	0.	0.	222.	1405.	78.	792.
1989	3.	1.	35.	5.	30.	224.	0.	0.	0.	0.	0.	0.	224.	1629.	71.	864.
1990	4.	1.	38.	4.	34.	377.	0.	0.	0.	0.	0.	0.	377.	2006.	109.	973.
1991	4.	1.	41.	6.	35.	469.	0.	0.	0.	0.	0.	0.	469.	2475.	123.	1096.
1992	4.	1.	44.	7.	37.	511.	0.	0.	0.	0.	0.	0.	511.	2987.	122.	1219.
1993	4.	1.	47.	6.	41.	421.	0.	0.	0.	0.	0.	0.	421.	3407.	92.	1310.
1994	4.	1.	50.	8.	44.	408.	0.	0.	0.	0.	0.	0.	408.	3816.	81.	1391.
1995	5.	1.	54.	6.	49.	400.	0.	0.	0.	0.	0.	0.	400.	4215.	72.	1463.
1996	5.	1.	58.	7.	51.	459.	0.	0.	0.	0.	0.	0.	459.	4674.	75.	1538.
1997	5.	1.	62.	8.	54.	518.	0.	0.	0.	0.	0.	0.	518.	5192.	77.	1615.
1998	5.	1.	66.	8.	60.	386.	0.	0.	0.	0.	0.	0.	386.	5578.	52.	1667.
1999	6.	1.	71.	15.	56.	975.	0.	0.	0.	0.	0.	0.	975.	6553.	120.	1787.
2000	6.	1.	76.	6.	70.	396.	0.	0.	0.	0.	0.	0.	396.	6949.	44.	1831.
2001	0.	0.	76.	3.	73.	201.	0.	0.	0.	0.	0.	0.	201.	7150.	20.	1852.
2002	0.	0.	76.	6.	70.	408.	0.	0.	0.	0.	0.	0.	408.	7558.	38.	1889.
2003	0.	0.	76.	7.	69.	484.	0.	0.	0.	0.	0.	0.	484.	8042.	41.	1930.
2004	0.	0.	76.	6.	70.	421.	0.	0.	0.	0.	0.	0.	421.	8462.	32.	1962.
2005	0.	0.	76.	6.	70.	427.	0.	0.	0.	0.	0.	0.	427.	8890.	30.	1992.
2006	0.	0.	76.	6.	70.	434.	0.	0.	0.	0.	0.	0.	434.	9324.	27.	2019.
2007	0.	0.	76.	7.	69.	514.	0.	0.	0.	0.	0.	0.	514.	9838.	29.	2048.
2008	0.	0.	76.	8.	68.	597.	0.	0.	0.	0.	0.	0.	597.	10435.	31.	2079.
2009	0.	0.	76.	6.	70.	454.	0.	0.	0.	0.	0.	0.	454.	10889.	22.	2101.
2010	0.	0.	76.	15.	61.	1154.	0.	0.	0.	0.	0.	0.	1154.	12043.	50.	2151.

NSE Page 165: Short Output Summary

Independent of the output grouping selected, a short output summary can be obtained. This is a sum over all 98 groups, of the same format as the preceding pages.

SHORT USER OUTPUT SUMMARY

YEAR	NEW AC	RET AC	NET POP	PCKGS PURCH	PCKGS CARRIED	PURCH EXPENSE	INST EXP	TOTAL ITC	RECUR COST	TOTAL DEPREC	FAA FEE	TOT BEN	CASH OUTLAY	CUMUL OUTLAY	PRESENT VALUE	CUMULATIVE PRES VALUE
1978	8004.	2981.	153032.	12014.	142014.	66900.	0.	4452.	0.	47995.	0.	0.	37491.	37491.	34083.	34083.
1979	8486.	3070.	158448.	15206.	144270.	84080.	0.	5521.	0.	49844.	0.	0.	52641.	90131.	43505.	77587.
1980	10671.	3152.	165967.	18804.	148225.	102916.	0.	6673.	0.	52952.	0.	0.	68708.	158839.	51621.	129208.
1981	13256.	3352.	175901.	22371.	154644.	124565.	0.	8082.	0.	57723.	0.	0.	86467.	245306.	59058.	188266.
1982	9545.	3549.	181897.	19317.	163729.	113006.	0.	7466.	0.	61308.	0.	0.	73660.	318966.	45737.	234003.
1983	8822.	3723.	184996.	17198.	168972.	101859.	0.	6742.	0.	63469.	0.	0.	62113.	381079.	35061.	269065.
1984	8711.	3846.	189861.	19696.	171367.	117828.	0.	7799.	0.	66764.	0.	0.	75312.	456391.	38647.	307711.
1985	9955.	4040.	195806.	21505.	175543.	134754.	0.	9045.	0.	73324.	0.	0.	87581.	543972.	40857.	348569.
1986	10633.	4201.	202238.	22635.	180875.	146833.	0.	9943.	0.	79641.	0.	0.	95477.	639449.	40492.	389060.
1987	10956.	4247.	208927.	23375.	186862.	149187.	0.	9968.	0.	84347.	0.	0.	95358.	734807.	36765.	425825.
1988	10719.	4297.	221346.	24636.	193098.	199974.	0.	13644.	0.	92293.	0.	0.	138338.	873145.	48487.	474312.
1989	14033.	4453.	231326.	21924.	210942.	146945.	0.	9855.	0.	95706.	0.	0.	87323.	960468.	27824.	502135.
1990	15595.	4661.	242260.	25916.	217713.	485524.	0.	30084.	0.	129051.	0.	0.	388334.	1348803.	112487.	614622.
1991	18360.	4877.	253743.	30041.	229998.	476429.	0.	28735.	0.	158961.	0.	0.	365034.	1713837.	96125.	710747.
1992	17196.	5112.	265797.	34071.	232925.	527736.	0.	31217.	0.	190636.	0.	0.	397388.	2111225.	95131.	805879.
1993	17840.	5310.	278327.	31541.	247893.	500848.	0.	29988.	0.	219272.	0.	0.	356838.	2468063.	77658.	883537.
1994	18833.	5593.	291567.	30273.	262310.	491062.	0.	29672.	0.	247422.	0.	0.	332731.	2800794.	65829.	949366.
1995	19572.	5882.	305257.	33248.	272918.	541560.	0.	32467.	0.	274312.	0.	0.	366451.	3167245.	65909.	1015275.
1996	20636.	6169.	319724.	35064.	284856.	587108.	0.	35102.	0.	310379.	0.	0.	390609.	3557854.	63868.	1079143.
1997	21265.	6455.	334534.	36919.	298298.	611279.	0.	36324.	0.	319294.	0.	0.	408922.	3966776.	60784.	1139927.
1998	22433.	6754.	350913.	39576.	311514.	686745.	0.	42101.	0.	338388.	0.	0.	468682.	4435458.	63333.	1203260.
1999	23029.	7089.	367153.	69904.	297249.	1308026.	0.	83694.	0.	413355.	0.	0.	1009387.	5444845.	123999.	1327259.
2000	23029.	7089.	383693.	23029.	360064.	429414.	0.	26688.	0.	408640.	0.	0.	190233.	5635078.	21245.	1348504.
2001	0.	0.	383693.	18383.	305310.	290358.	0.	15706.	0.	388775.	0.	0.	72429.	5707507.	7353.	1355857.
2002	0.	0.	383693.	29227.	354466.	468462.	0.	25390.	0.	378664.	0.	0.	246167.	5953674.	22720.	1378578.
2003	0.	0.	383693.	33206.	350487.	539863.	0.	29214.	0.	370253.	0.	0.	318118.	6271792.	26692.	1405269.
2004	0.	0.	383693.	31052.	352041.	541230.	0.	30798.	0.	362358.	0.	0.	322007.	6593798.	24562.	1429831.
2005	0.	0.	383693.	30017.	353676.	551395.	0.	32376.	0.	348465.	0.	0.	337817.	6931615.	23425.	1453257.
2006	0.	0.	383693.	32934.	350759.	609916.	0.	35545.	0.	279680.	0.	0.	428937.	7360553.	27040.	1480297.
2007	0.	0.	383693.	35403.	348290.	670075.	0.	39238.	0.	297609.	0.	0.	476080.	7836633.	27283.	1507580.
2008	0.	0.	383693.	36803.	346890.	712017.	0.	41942.	0.	335003.	0.	0.	495874.	8332506.	25834.	1533415.
2009	0.	0.	383693.	38994.	344699.	768076.	0.	45401.	0.	363591.	0.	0.	533608.	8866114.	25273.	1558687.
2010	0.	0.	383693.	66751.	316942.	1305485.	0.	76605.	0.	431292.	0.	0.	1004608.	9870722.	43255.	1601943.

NSE Pages 166-172: Combined FAA User Expenses

Lastly, the NSE provides combined FAA/user results. The format is self-explanatory; it consists of the final three summary columns of the user results, of the FAA results, followed by three columns presenting their respective sums.

Page 166 provides these results based upon the user input discount rate (in this case, 10%). Automatic "looping" on the discount rate values is easily accomplished and these results are therefore also provided. Pages 167-172 present corrolary results for discount rates from 0 to 10%, in increments of 2%. Of interest is the 0% page (167), as these results are equivalent to total cash outlay data.

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

YEAR	USERS AFTER TAX CASH OUTLAY	USERS PRESENT VALUE	USERS CUMULATIVE PRESENT VALUE	FAA NET CASH OUTLAY	FAA PRESENT VALUE	FAA CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	TOTAL PRESENT VALUE	TOTAL CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68706.	51621.	129208.	106282.	79851.	216705.	174989.	131472.	345913.
1981	80467.	59058.	188266.	88161.	60215.	276920.	174628.	119273.	465186.
1982	73600.	45737.	234003.	53441.	33183.	310103.	127101.	78920.	544106.
1983	62113.	35061.	269065.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38047.	307711.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87581.	40857.	348569.	51662.	24101.	380096.	139243.	64958.	728665.
1986	95477.	40492.	389060.	55963.	23734.	403830.	151440.	64225.	792890.
1987	95358.	36765.	425825.	60612.	23368.	427198.	155970.	60133.	853023.
1988	138338.	48487.	474312.	65638.	23006.	450204.	203975.	71492.	924515.
1989	87323.	27824.	502135.	71070.	22645.	472849.	158393.	50469.	974984.
1990	388334.	112487.	614622.	61441.	17797.	490646.	449776.	130284.	1105268.
1991	365034.	96125.	710747.	65742.	17312.	507958.	430777.	113437.	1218705.
1992	347388.	95131.	805879.	70344.	16840.	524798.	467732.	111971.	1330677.
1993	356638.	77659.	883537.	75268.	16381.	541179.	432107.	94039.	1424716.
1994	332731.	65829.	949366.	80537.	15934.	557112.	413268.	81763.	1506478.
1995	366451.	65909.	1015275.	86175.	15499.	572612.	452626.	81409.	1587887.
1996	390609.	63868.	1079143.	92207.	15077.	587688.	482816.	78944.	1666831.
1997	409922.	60784.	1139927.	98661.	14665.	602354.	507583.	75449.	1742280.
1998	459682.	63333.	1203260.	105568.	14265.	616619.	574250.	77599.	1819879.
1999	1004367.	123994.	1327259.	112958.	13876.	630496.	1122345.	137876.	1957755.
2000	190233.	21245.	1348504.	8817.	985.	631480.	199050.	22230.	1979984.
2001	72429.	7353.	1355857.	9435.	958.	632438.	81864.	8311.	1988296.
2002	240167.	22720.	1378578.	10095.	932.	633370.	256262.	23652.	2011948.
2003	318118.	26692.	1405269.	10802.	906.	634276.	328919.	27598.	2039546.
2004	322007.	24562.	1429831.	11558.	882.	635158.	333564.	25444.	2064989.
2005	337817.	23425.	1453257.	12367.	858.	636015.	350184.	24283.	2089272.
2006	428937.	27040.	1480297.	13233.	834.	636849.	442170.	27874.	2117146.
2007	470080.	27283.	1507580.	14159.	811.	637661.	490239.	28095.	2145241.
2008	495674.	25834.	1533415.	15150.	789.	638450.	511023.	26624.	2171865.
2009	533608.	25273.	1558687.	16210.	768.	639218.	549818.	26041.	2197905.
2010	1004608.	43255.	1601903.	17345.	747.	639965.	1021953.	44002.	2241907.

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 0 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER-TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	37491.	37491.	65653.	65653.	65653.	103143.	103143.	103143.
1979	52641.	52641.	90131.	93375.	93375.	159028.	146016.	146016.	249159.
1980	68708.	68708.	158839.	106282.	106282.	265310.	174989.	174989.	424149.
1981	86467.	86467.	245306.	88161.	88161.	353471.	174628.	174628.	598777.
1982	73000.	73000.	318966.	53441.	53441.	406912.	127101.	127101.	725878.
1983	62113.	62113.	381079.	46797.	46797.	453709.	108910.	108910.	834788.
1984	75312.	75312.	456391.	37954.	37954.	491663.	113266.	113266.	948054.
1985	87581.	87581.	543972.	51662.	51662.	543325.	139243.	139243.	1087297.
1986	95477.	95477.	639449.	55963.	55963.	599288.	151440.	151440.	1238737.
1987	95358.	95358.	734807.	60612.	60612.	659900.	155970.	155970.	1394707.
1988	138338.	138338.	873145.	65638.	65638.	725538.	203975.	203975.	1598683.
1989	87323.	87323.	960468.	71070.	71070.	796608.	158393.	158393.	1757076.
1990	388334.	388334.	1348803.	61441.	61441.	858049.	449776.	449776.	2206852.
1991	365034.	365034.	1713837.	65742.	65742.	923791.	430777.	430777.	2637629.
1992	397388.	397388.	2111225.	70344.	70344.	994136.	467732.	467732.	3105361.
1993	356836.	356836.	2468063.	75268.	75268.	1069404.	432107.	432107.	3537467.
1994	332731.	332731.	2800794.	80537.	80537.	1149941.	413268.	413268.	3950735.
1995	306451.	306451.	3107245.	86175.	86175.	1236116.	452626.	452626.	4403361.
1996	340009.	340009.	3557854.	92207.	92207.	1328323.	482816.	482816.	4886177.
1997	408922.	408922.	3966776.	98661.	98661.	1426984.	507583.	507583.	5393760.
1998	468082.	468082.	4435458.	105568.	105568.	1532552.	574250.	574250.	5968010.
1999	1009587.	1009587.	5445045.	112958.	112958.	1645510.	1122345.	1122345.	7090355.
2000	190233.	190233.	5635078.	8817.	8817.	1654327.	199050.	199050.	7289405.
2001	72429.	72429.	5707507.	9435.	9435.	1663762.	81864.	81864.	7371269.
2002	246167.	246167.	5953674.	10095.	10095.	1673857.	256262.	256262.	7627531.
2003	318118.	318118.	6271792.	10802.	10802.	1684658.	328919.	328919.	7956450.
2004	322007.	322007.	6593798.	11558.	11558.	1696216.	333564.	333564.	8290014.
2005	337817.	337817.	6931615.	12367.	12367.	1708583.	350184.	350184.	8640198.
2006	428937.	428937.	7360553.	13233.	13233.	1721815.	442170.	442170.	9082368.
2007	476080.	476080.	7836633.	14159.	14159.	1735974.	490239.	490239.	9572607.
2008	495874.	495874.	8332506.	15150.	15150.	1751124.	511023.	511023.	10083630.
2009	533608.	533608.	8866114.	16210.	16210.	1767334.	549818.	549818.	10633448.
2010	1004608.	1004608.	9870722.	17345.	17345.	1784680.	1021953.	1021953.	11655401.

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 2 PERCENT

YEAR	USERS AFTER TAX CASH OUTLAY	USERS PRESENT VALUE	USERS CUMULATIVE PRESENT VALUE	FAA NET CASH OUTLAY	FAA PRESENT VALUE	FAA CUMULATIVE PRESENT VALUE	TOTAL TOTAL OUTLAY	TOTAL PRESENT VALUE	TOTAL CUMULATIVE PRESENT VALUE
1978	37491.	36756.	36756.	65653.	64365.	64365.	103143.	101121.	101121.
1979	52641.	50596.	87352.	93375.	89749.	154115.	146016.	140346.	241467.
1980	68708.	64745.	152097.	106282.	100152.	254267.	174989.	164896.	406363.
1981	80467.	79882.	231979.	88161.	81447.	335714.	174628.	161329.	567693.
1982	73669.	66716.	298695.	53441.	48403.	384117.	127101.	115120.	682812.
1983	62113.	55155.	353850.	46797.	41554.	425671.	108910.	96709.	779521.
1984	75512.	65564.	419413.	37954.	33041.	458713.	113266.	98605.	878126.
1985	87581.	74750.	494163.	51662.	44093.	502806.	139243.	118843.	996969.
1986	95477.	79691.	574054.	55963.	46827.	549633.	151440.	126518.	1123687.
1987	95356.	78227.	652281.	50612.	49723.	599356.	155970.	127950.	1251637.
1988	134338.	111260.	763541.	65638.	52790.	652146.	203975.	164050.	1415687.
1989	87323.	68854.	832395.	71070.	56038.	708184.	158393.	124892.	1540579.
1990	308334.	300195.	1132590.	61441.	47496.	755680.	449776.	347691.	1888270.
1991	305054.	276650.	1409240.	65742.	49824.	805505.	430777.	326475.	2214745.
1992	397386.	295265.	1704505.	70344.	52267.	857772.	467732.	347532.	2562277.
1993	356838.	259937.	1964443.	75268.	54829.	912601.	432107.	314766.	2877043.
1994	332731.	237624.	2202066.	80537.	57517.	970117.	413268.	295140.	3172184.
1995	306451.	256574.	2458641.	86175.	60336.	1030453.	452626.	316910.	3489094.
1996	390609.	268126.	2726767.	92207.	63294.	1093747.	482816.	331420.	3820514.
1997	406922.	275193.	3001959.	98661.	66396.	1160143.	507583.	341589.	4162103.
1998	466882.	309225.	3311184.	105568.	69651.	1229794.	572250.	378876.	4540979.
1999	1006387.	652911.	3964096.	112958.	73065.	1302860.	1122345.	725977.	5266955.
2000	190233.	120637.	4084733.	8817.	5592.	1308451.	199050.	126229.	5393184.
2001	72429.	45031.	4129764.	9435.	5866.	1314317.	81864.	50896.	5444081.
2002	246167.	150046.	4279810.	10095.	6153.	1320470.	256262.	156200.	5600280.
2003	318118.	190101.	4469910.	10802.	6455.	1326925.	328919.	196555.	5796835.
2004	322007.	188651.	4658562.	11558.	6771.	1333696.	333564.	195423.	5992258.
2005	337617.	194033.	4852595.	12367.	7103.	1340799.	350184.	201137.	6193395.
2006	422937.	241540.	5094135.	13233.	7451.	1348251.	442170.	248991.	6442386.
2007	476080.	268830.	5362965.	14159.	7817.	1356068.	490239.	276647.	6719033.
2008	445874.	248390.	5625355.	15150.	8200.	1364267.	511023.	276589.	6959622.
2009	533008.	283150.	5908505.	16210.	8602.	1372869.	549818.	291752.	7281374.
2010	1004608.	522620.	6431131.	17345.	9023.	1381893.	1021953.	531649.	7813023.

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 4 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	36049.	36049.	65653.	63128.	63128.	103143.	99176.	99176.
1979	52041.	48069.	84118.	93375.	86331.	149458.	146016.	135000.	234176.
1980	65708.	61081.	145799.	106282.	94484.	243943.	174989.	155565.	389741.
1981	85467.	73912.	219711.	88161.	75360.	319303.	174628.	149273.	539014.
1982	73660.	60543.	280254.	53441.	43925.	363228.	127101.	104468.	643482.
1983	62113.	49089.	329343.	46797.	36984.	400212.	108910.	86073.	729555.
1984	75312.	57231.	386574.	37954.	28842.	429054.	113266.	86073.	815628.
1985	87581.	63995.	450569.	51662.	37749.	466803.	139243.	101744.	917372.
1986	95477.	67081.	517650.	55963.	39319.	506122.	151440.	106400.	1023771.
1987	95358.	64421.	582070.	60612.	40947.	547069.	155970.	105368.	1129139.
1988	138336.	89862.	671932.	65638.	42637.	589706.	203975.	132499.	1261638.
1989	87323.	54542.	726474.	71070.	44390.	634096.	158393.	98932.	1360570.
1990	356534.	233223.	959697.	61441.	36900.	670996.	449776.	270124.	1630693.
1991	369034.	210798.	1170495.	65742.	37965.	708961.	430777.	248763.	1879456.
1992	347588.	220655.	1391151.	70344.	39060.	748020.	467732.	259715.	2139171.
1993	356836.	190519.	1581670.	75268.	40186.	788207.	432107.	230705.	2369876.
1994	332731.	170815.	1752485.	80537.	41346.	829552.	413268.	212161.	2582037.
1995	356451.	180891.	1933375.	86175.	42538.	872091.	452626.	223429.	2805466.
1996	390609.	185400.	2118775.	92207.	43765.	915856.	482816.	229165.	3034631.
1997	408922.	186626.	2305401.	98661.	45028.	960884.	507583.	231654.	3266285.
1998	466682.	205673.	2511075.	105568.	46327.	1007210.	574250.	252000.	3518285.
1999	1009387.	425916.	2936991.	112958.	47663.	1054873.	1122345.	473579.	3991864.
2000	190233.	77153.	3014174.	8817.	3577.	1058451.	199050.	80740.	4072624.
2001	72429.	28256.	3042430.	9435.	3681.	1062131.	81864.	31937.	4104561.
2002	246167.	92341.	3134771.	10095.	3787.	1065918.	256262.	96128.	4200689.
2003	318118.	114742.	3249513.	10802.	3896.	1069814.	328919.	118638.	4319327.
2004	322007.	111677.	3361190.	11558.	4008.	1073823.	333564.	115686.	4435012.
2005	337617.	112654.	3473844.	12367.	4124.	1077947.	350184.	116778.	4551791.
2006	428937.	137539.	3611383.	13233.	4243.	1082190.	442170.	141782.	4693573.
2007	470080.	146784.	3758168.	14159.	4365.	1086555.	490239.	151150.	4844723.
2008	495874.	147007.	3905174.	15150.	4491.	1091047.	511023.	151498.	4996221.
2009	533608.	152109.	4057284.	16210.	4621.	1095667.	549818.	156730.	5152951.
2010	1004608.	275357.	4332641.	17345.	4754.	1100422.	1021953.	280111.	5433062.

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 6 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	35369.	35369.	65653.	61937.	61937.	103143.	97305.	97305.
1979	52641.	46850.	82219.	93375.	83104.	145040.	146016.	129954.	227259.
1980	65706.	57683.	139907.	106282.	89236.	234277.	174989.	146924.	374183.
1981	80467.	68490.	208397.	88161.	69832.	304108.	174628.	138322.	512505.
1982	73060.	55043.	263440.	53441.	39934.	344043.	127101.	94977.	607482.
1983	82113.	43787.	307227.	46797.	32990.	377032.	108910.	76777.	684259.
1984	75312.	50087.	357314.	37954.	25242.	402274.	113266.	75328.	759588.
1985	67581.	54949.	412263.	51062.	32414.	434688.	139243.	87363.	846951.
1986	95477.	56513.	468776.	55963.	33124.	467812.	151440.	89637.	936588.
1987	95358.	53248.	522024.	60612.	33845.	501657.	155970.	87093.	1023681.
1988	138338.	72475.	594498.	65638.	34377.	536235.	203975.	107452.	1131133.
1989	87323.	43397.	638295.	71070.	35320.	571554.	158393.	78717.	1209849.
1990	368334.	182066.	820361.	61441.	28806.	600360.	449776.	210872.	1420722.
1991	305034.	161455.	981816.	65742.	29078.	629438.	430777.	190533.	1611255.
1992	397586.	165818.	1147632.	70344.	29352.	658790.	467732.	195168.	1806423.
1993	356638.	140466.	1288101.	75268.	29629.	688419.	432107.	170097.	1976520.
1994	332731.	123564.	1411665.	80537.	29909.	718328.	413268.	153473.	2129993.
1995	356451.	128384.	1540049.	86175.	30191.	748519.	452626.	158575.	2288568.
1996	340609.	129101.	1669150.	92207.	30476.	778994.	482816.	159577.	2448145.
1997	405922.	127504.	1796654.	98661.	30763.	809758.	507583.	158267.	2606411.
1998	468082.	137865.	1934519.	105568.	31053.	840811.	574250.	168919.	2775330.
1999	1009387.	280110.	2214629.	112958.	31346.	872157.	1122345.	311456.	3086786.
2000	140233.	49802.	2264432.	8817.	2308.	874466.	199050.	52111.	3138897.
2001	72429.	17688.	2282320.	9435.	2330.	876796.	81864.	20219.	3159116.
2002	240167.	57357.	2339677.	10095.	2352.	879148.	256262.	59709.	3218824.
2003	418118.	69925.	2409602.	10802.	2374.	881522.	328919.	72300.	3291124.
2004	322007.	66774.	2476376.	11558.	2397.	883919.	333564.	69171.	3360295.
2005	337817.	66067.	2542463.	12367.	2419.	886338.	350184.	68506.	3428801.
2006	428937.	79163.	2621626.	13233.	2442.	888780.	442170.	81605.	3510407.
2007	476080.	82890.	2704517.	14159.	2465.	891245.	490239.	85356.	3595762.
2008	495874.	81450.	2785966.	15150.	2488.	893734.	511023.	83938.	3679700.
2009	533608.	82686.	2868653.	16210.	2512.	896246.	549818.	85198.	3764899.
2010	1004608.	146860.	3015513.	17345.	2536.	898781.	1021953.	149395.	3914294.

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 8 PERCENT

	U S E R S			F A A			T O T A L		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34714.	34714.	65653.	60790.	60790.	103143.	95503.	95503.
1979	52641.	45131.	79844.	93375.	80054.	140844.	146016.	125185.	220688.
1980	68708.	54542.	134387.	106282.	84370.	225214.	174989.	138912.	359600.
1981	86867.	63556.	197942.	88161.	64801.	290015.	174628.	128357.	487957.
1982	73000.	50132.	248074.	53441.	36371.	326386.	127101.	86503.	574460.
1983	62113.	39142.	287216.	46797.	29490.	355876.	108910.	68632.	643092.
1984	75512.	43944.	331160.	37954.	22146.	378022.	113266.	66090.	709182.
1985	87581.	47317.	378477.	51662.	27912.	405933.	139243.	75229.	784411.
1986	95477.	47762.	426240.	55963.	27995.	433929.	151440.	75758.	860168.
1987	95358.	44169.	470409.	60612.	28075.	462004.	155970.	72244.	932413.
1988	134336.	59331.	529740.	65638.	28151.	490154.	203975.	87482.	1019894.
1989	87323.	34677.	564417.	71070.	28223.	518377.	158393.	62900.	1082794.
1990	344334.	142790.	707207.	61441.	22592.	540969.	449776.	165382.	1248176.
1991	365034.	124280.	831487.	65742.	22383.	563352.	430777.	146663.	1394839.
1992	397388.	125273.	956760.	70344.	22175.	585527.	467732.	147449.	1542287.
1993	336836.	104158.	1060917.	75266.	21970.	607498.	432107.	126128.	1668415.
1994	342731.	89927.	1150844.	80537.	21767.	629264.	413268.	111693.	1780108.
1995	356451.	91704.	1242548.	86175.	21565.	650829.	452626.	113269.	1893378.
1996	390609.	90509.	1333057.	92207.	21365.	672195.	482816.	111874.	2005252.
1997	408922.	87733.	1420791.	98661.	21168.	693362.	507583.	108901.	2114153.
1998	456682.	93106.	1513897.	105568.	20972.	714334.	574250.	114078.	2228231.
1999	1009387.	185667.	1699564.	112958.	20777.	735112.	1122345.	206445.	2434676.
2000	190233.	32400.	1731964.	8817.	1502.	736613.	199050.	33901.	2468577.
2001	72429.	11422.	1743386.	9435.	1488.	738101.	81864.	12910.	2481487.
2002	246167.	35945.	1779331.	10095.	1474.	739575.	256262.	37419.	2518906.
2003	318118.	43010.	1822341.	10802.	1460.	741036.	328919.	44470.	2563376.
2004	322007.	40311.	1862652.	11558.	1447.	742482.	333564.	41758.	2605134.
2005	337817.	39158.	1901809.	12367.	1433.	743916.	350184.	40591.	2645725.
2006	425937.	46037.	1947846.	13233.	1420.	745336.	442170.	47457.	2693182.
2007	470080.	47312.	1995158.	14159.	1407.	746743.	490239.	48719.	2741901.
2008	495874.	45628.	2040786.	15150.	1394.	748137.	511023.	47022.	2788923.
2009	533608.	45463.	2086249.	16210.	1381.	749518.	549818.	46845.	2835767.
2010	1004608.	79252.	2165502.	17345.	1368.	750887.	1021953.	80621.	2916388.

COMBINED FAA/USER EXPENSES
(IN THOUSANDS OF DOLLARS)

DISCOUNT RATE= 10 PERCENT

	USERS			FAA			TOTAL		
YEAR	AFTER TAX CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	NET CASH OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE	TOTAL OUTLAY	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1978	37491.	34083.	34083.	65653.	59684.	59684.	103143.	93767.	93767.
1979	52641.	43505.	77587.	93375.	77170.	136854.	146016.	120674.	214441.
1980	68708.	51621.	129208.	106282.	79851.	216705.	174989.	131472.	345913.
1981	86467.	59058.	188266.	88161.	60215.	276920.	174628.	119273.	465186.
1982	73660.	45737.	234003.	53441.	33183.	310103.	127101.	78920.	544106.
1983	62113.	35061.	269065.	46797.	26416.	336519.	108910.	61477.	605583.
1984	75312.	38647.	307711.	37954.	19477.	355995.	113266.	58123.	663707.
1985	87581.	40857.	348569.	51662.	24101.	380096.	139243.	64958.	728665.
1986	95477.	40492.	389060.	55963.	23734.	403830.	151440.	64225.	792890.
1987	95358.	36765.	425825.	60612.	23368.	427198.	155970.	60133.	853023.
1988	138336.	48487.	474312.	65638.	23006.	450204.	203975.	71492.	924515.
1989	87323.	27824.	502135.	71070.	22645.	472849.	158393.	50469.	974984.
1990	388334.	112487.	614622.	61441.	17797.	490646.	449776.	130284.	1105268.
1991	365034.	96125.	710747.	65742.	17312.	507958.	430777.	113437.	1218705.
1992	397388.	95131.	805879.	70344.	16840.	524798.	467732.	111971.	1330677.
1993	356838.	77658.	883537.	75268.	16381.	541179.	432107.	94039.	1424716.
1994	332731.	65829.	949366.	80537.	15934.	557112.	413268.	81763.	1506478.
1995	366451.	65909.	1015275.	86175.	15499.	572612.	452626.	81409.	1587887.
1996	390609.	63866.	1079143.	92207.	15077.	587688.	482816.	78944.	1666831.
1997	408922.	60784.	1139927.	98661.	14665.	602354.	507583.	75449.	1742280.
1998	468682.	63333.	1203260.	105568.	14265.	616619.	574250.	77599.	1819879.
1999	1009367.	123999.	1327259.	112958.	13876.	630496.	1122345.	137876.	1957755.
2000	190233.	21245.	1348504.	8817.	985.	631480.	199050.	22230.	1979984.
2001	72429.	7353.	1355857.	9435.	958.	632438.	81864.	8311.	1988296.
2002	246167.	22720.	1378578.	10095.	932.	633370.	256262.	23652.	2011948.
2003	318118.	26692.	1405269.	10802.	906.	634276.	328919.	27598.	2039546.
2004	322007.	24562.	1429831.	11558.	882.	635158.	333564.	25444.	2064989.
2005	337817.	23425.	1453257.	12367.	858.	636015.	350184.	24283.	2089272.
2006	428937.	27040.	1480297.	13233.	834.	636849.	442170.	27874.	2117146.
2007	476080.	27283.	1507580.	14159.	811.	637661.	490239.	28095.	2145241.
2008	445874.	25834.	1533415.	15150.	789.	638450.	511023.	26624.	2171865.
2009	533608.	25273.	1558687.	16210.	768.	639218.	549818.	26041.	2197905.
2010	1004608.	43255.	1601943.	17345.	747.	639965.	1021953.	44002.	2241907.

APPENDIX REFERENCES

A1 Aircraft Avionics Population Projections (1977-2000), Advanced Technology, Inc., April 22, 1977, prepared under the guidance of the FAA Aviation Forecast Branch for FAA Office of Aviation of Systems Plans, Planning Requirement Branch.

A2 FAA Advisory Circular AC No. 140-IH, dated 2-9-76, "Consolidated Listing of FAA Certificated Repair Stations."

A3 FAA Memorandum, "Avionics Retrofit Rate Trends," dated March 2, 1977, to: ASP-120, From: Chief, General Aviation Division, AFS-800.

A4 R.D. Alberts and W.H. Reudger, "Preliminary Study of NAVSTAR/GPS for General Aviation," NASA CR-145059, Research Triangle Institue, Research Triangle Park, North Carolina 24709, Nov. 1976.

A5 Information provided by Mr. G.E. Quinby*, SCI (Vt) RAANS Consultant

A6 G.F. Quinby, "RAANS Study, Navigation Avionics Characterization and Costs," subcontractor report prepared for Systems Control, Inc. (Vt), Palo Alto, CA, May 1977.

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